DOCUMENT RESUME

ED 209 775 EA 014 239

TITLE	Progress of Education in the United States of America, 1978-79 and 1979-80. Report for the Thirty-Eighth International Conference of Education.
INSTITUTION	Department of Education, Washington, D.C.
SPONS AGENCY	International Bureau of Education, Geneva (Switzerland).
REPORT NO	E-82-14020
PUB DATE	82
NOTE	111p.: Some tables may not reproduce clearly.
AVAILABLE FROM	Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 (Stock No. 065-000-00121-7; $5.50).
EDRS PRICE	MF01/PC05 Plus Postage.
DESCRIPTORS	*Administrative Organization; Curriculum; Educational Administration; Educational Finance; Educational Research; *Educational Trends; *Education Work Relationship; Enrollment Trends; Federal Aid; Federal Legislation; Federal State Relationship; Financial Policy; School District Autonomy; School Organization; School Statistics; Tables (Data); *Vocational Education

ABSTRACT

Summarizing recent trends and developments in public and private education in the United States, this report examines Constitutional and statutory provisions for education, discusses recent federal legislation, and describes the role of state and local authorities in the governance of elementary, secondary, and higher education. Expenditures, curricular issues, organizational structure, and statistical trends are presented. One section discusses the role of the federal government in current educational research, focusing especially on the National Institute of Education. The report also addresses the interaction of education and work. It provides an overview of the role of vocational education in preparing youth and adults for entry into the world of work and concentrates on the actions taken by the United States to strengthen and develop programs that link education and work. The report ends with a set of appendices that include a list of national advisory committees, selected references, and statistical tables. (JEH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

Publication No. E-82-14020

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED209775

Progress of Education in the United States of America 1978-79 and 1979-80

Report for the Thirty-Eighth International Conference of Education, Sponsored by the United Nations Educational, Scientific, and Cultural Organization, International Bureau of Education

EA 014 239

U.S. DEPARTMENT OF EDUCATION
T. H. Bell, Secretary
John H. Rodriguez, Deputy Under Secretary for Intergovernmental and Interagency Affairs

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON: 1982

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

Foreword

This report for the period 1978 to 1980 is the most recent in the series prepared for the International Conferences on Education that have been held in Geneva, Switzerland, since 1934 under the auspices of the International Bureau of Education.

Part I deals with the organization and administration of education in the United States and describes major trends in education. The first section discusses the basic principles, objectives, and priorities for education as they relate to the social and educational needs of the population. The second section highlights significant new legislation enacted in the past 2 years which affects the organization of education. The third section describes the roles of the Federal, State, and local governments in the administration of education, and the fourth concerns financing. Section five discusses the organization, structure, and function of the various levels of education as well as curriculum and teacher training. The sixth section includes selected statistics on American education compiled by the National Center for Education Statistics to show developments and trends in various aspects of U.S. education; a brief summary of trends in curriculum and teacher education also appears. The seventh section provides information on new developments in educational research.

Part II addresses the special theme of the thirty-eighth session of the International Conference on Eduction, "The Interaction of Education and Work." It gives an overview of the role of vocational education in preparing youth and adults for entry into a rapidly changing world of work. It also focuses on actions taken by the United States to strengthen and develop programs that link education and work.

The report ends with a set of appendixes, including selected references published in the United States from 1978 through 1980.

As this report goes to print Federal education programs are in transition. The present Federal role in education may be reduced in the next few years. The current administration's policy is that authority and responsibility for education belong to the States and localities, the Federal Government's role should be diminished, and many Federal programs should be deregulated. This is in keeping with the spirit of the U.S. Constitution -- that education is a power reserved to the several States.

The Congress has passed the Education Consolidation and Improvement Act of 1981. This new, sweeping legislation may indicate fundamental changes in intergovernmental relationships in education. It consolidates categorical grant programs for elementary and secondary education into one block grant and significantly revises Title I of the Elementary and Secondary Education Act, the largest of the

current Federal education grant programs. These statutory changes are intended to return major responsibility for decisionmaking and use of Federal funds to the State and local education agencies.

To strengthen the relationship between education and work, two major pieces of Federal legislation -- the Vocational Education Act (as amended) and the Comprehensive Employment and Training Act (CETA) — are scheduled for reauthorization in 1982. The exact roles of Federal efforts in vocational education and training and employment remain unclear, but will undoubtedly be combined and coordinated to focus on meeting the Nation's critical priorities of revitalizing the economy and reducing inflation and unemployment. In this endeavor, as in education in general, emphasis will be placed on returning more authority and responsibility to the States and local communities, and on increasing cooperation with the private sector.

This complete report is being made available in English and French. Summaries will be available in Arabic, Chinese, Japanese, Portuguese, Spanish, and Russian. These summaries and the report in French are useful not only to Member States of UNESCO represented at the International Conferences on Education in Geneva, but also to the thousands of visitors from abroad who seek information from the U.S. Department of Education and to non-English-speaking educators and policymakers in many other countries.

John H. Rodriguez
Deputy Under Secretary for
Intergovernmental and Interagency Affairs

November 2, 1981

Contents

	Page
Foreword	iii
PART I	
1. Principles, Objectives, and Priorities	3
2. New Legislation	7
3. System of Administration	13
4. Financing	17
5. Organization and Structure	19
6. Educational Trends	31
7. Educational Research	43
PART II	
Interaction Between Education and Work	57
APPENDIXES	
A. National Advisory Committees	75
B. Selected References: 1979 and 1980	77

FIGURES

Page

1. The structure of education in the United States ---------- 2

2. Expenditures for education, health, and defense as a percent of the gross national product: United States, 1949 to 1978 ---------- 85

3. Number of local public school systems: United States, 1945-46 to 1979-80 ---------- 86

4. Enrollment in institutions of higher education, by sex, age, and attendance status: United States, fall 1969 and fall 1979 ---------- 87

5. Level of school completed by persons 25 years old and over: United States, 1910 to 1980 ---------- 88

TABLES

1. Revenue receipts of public elementary and secondary schools from Federal, State, and local sources: United States, 1919-20 to 1978-79 ---------- 89

2. Total and per-pupil expenditures of public elementary and secondary schools: United States, 1919-20 to 1978-79 ---------- 90

3. Current-fund revenue of institutions of higher education, by control of institution and by source of revenue: United States, 1978-79 ---------- 91

4. Governmental expenditures for education and for all purposes: United States, 1972-73 to 1978-79 ---------- 92

5. Gross national product related to total expenditures for education: United States, 1929-30 to 1978-79 ---------- 92

6. Selected statistics for public elementary and secondary schools: United States, fall 1974 and fall 1979 ---------- 93

7. Enrollment in educational institutions, by level of instruction and by type of control: United States, fall 1978 and fall 1979 ---------- 94

TABLES

Page

8. Enrollment of 3-, 4-, and 5-year-old children in preprimary programs by age and type of program: United States, October 1978 and October 1979 ---------- 95

9. Enrollment in grades 9-12 in public and private schools compared with population 14-17 years of age: United States, 1889-90 to fall 1979 ---------- 96

10. Enrollment in vocational education programs, by type of program and by level: United States and outlying areas, 1978-79 ---------- 97

11. Number of institutions of higher education, by control and type of institution: United States, 1963-66 to 1979-80 ---------- 98

12. Total enrollment in institutions of higher education compared with population aged 18-24: United States, fall 1963 to fall 1979 ---------- 99

13. Enrollment in institutions of higher education by age, sex and attendance status of student: United States, fall 1969, 1974 and 1979 ---------- 100

14. Number of teachers in regular elementary and secondary schools and instructional staff members in institutions of higher education, by level and control: United States, 1929-30 to fall 1979 ---------- 101

15. Pupil-teacher ratios in public elementary and secondary day schools: United States, fall 1954 to fall 1979 ---- 102

16. Number of high school graduates by sex: United States, 1869-70 to 1978-79 ---------- 103

17. Earned degrees conferred by institutions of higher education, by level of degree: United States, 1869-70 to 1978-79 ---------- 104

18. Earned degrees conferred by institutions of higher education, by field of study and by level: United States, 1978-79 ---------- 105

19. Estimated retention rates, 5th grade through college entrance, in public and private schools: United States, 1924-25 to fall 1971 ---------- 106

TABLES

Page

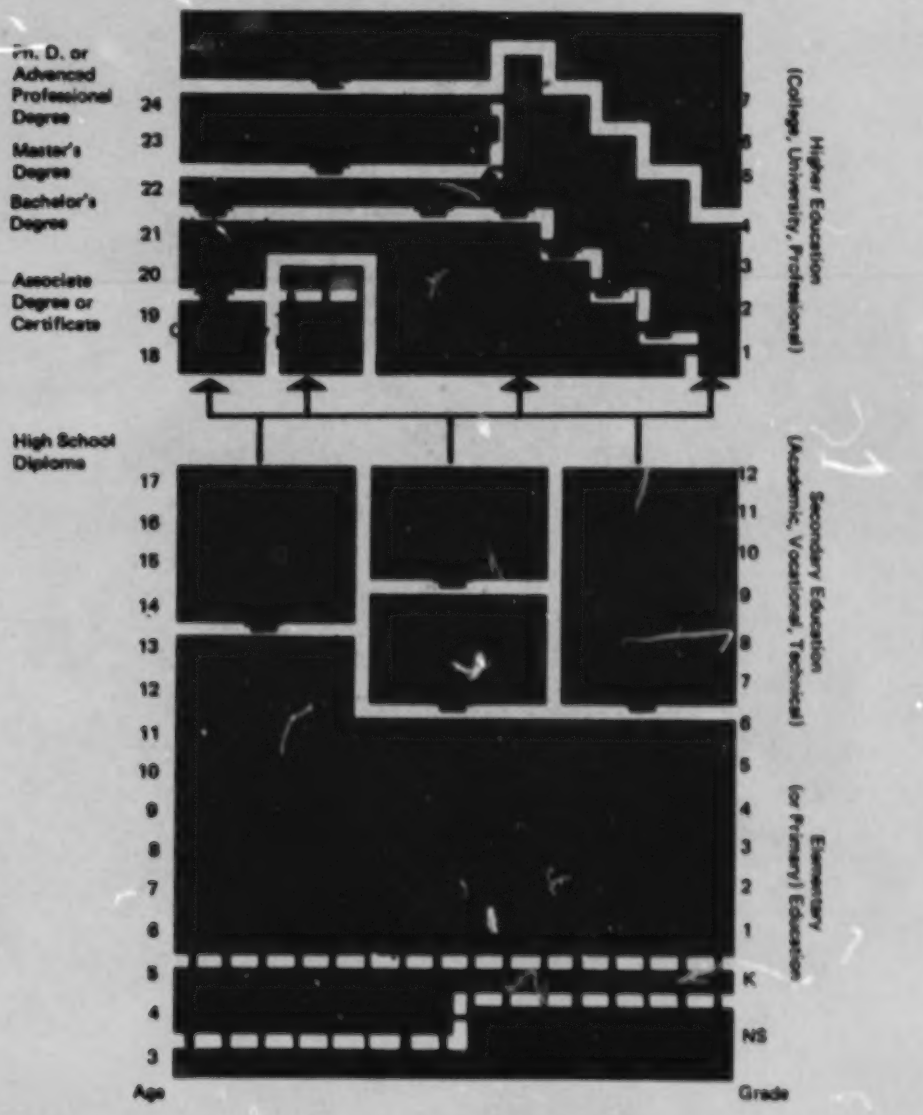
20. Level of school completed by persons age 25 and over and 25 to 29, by race: United States, 1910 to 1980 ----- 107

21. States using minimum competency testing, by government level setting standards, grade levels assessed, and expected uses of standards: 1979 ---------- 108

Part I:

Organization and Structure of the Educational System

Figure 1.–The structure of education in the United States



NOTE.–Adult education programs, while not separately depicted above, may provide instruction at the elementary, secondary, or higher education level.

1. PRINCIPLES, OBJECTIVES, AND PRIORITIES

Education in the United States[1] is a highly decentralized function. The 10th Amendment to the Constitution provides that "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people." Since responsibility for education is not mentioned in the Constitution, it is legally reserved to the States. Thus, each State has the right and responsibility to organize and operate its educational system as it deems appropriate -- subject to constitutional guarantees of the rights and privileges of U.S. citizens. State legislatures have chosen a variety of methods in which to carry out their responsibility but, by and large, have elected to place considerable authority and responsibility in the hands of local school boards. It is an axiom of education law that, in matters relating to education, the State legislature is plenary and is subject in its decisions only to restrictions placed upon it by the State constitution.

Statutory provisions for establishing educational institutions and programs vary greatly among the States. Some are quite specific; others simply mention educational matters in broad terms. Considerable responsibility is often delegated to local education authorities. Despite various differences among the States, in practice the organizational patterns of education in the 50 States are similar as a result of such common social and economic forces as the need to prepare students for employment and higher education, State certification or accrediting association requirements, and the various regulations governing State and Federal funding.

Education in the United States is compulsory, usually from the age of 6 to 16, and free at least through completion of secondary school (grade 12) for those who attend public schools, which are available to all children (figure 1). Public education aims to assure equality of access and of educational opportunity to both boys and girls, including all minority groups and the handicapped. Moreover, public schools have a long tradition of coeducation.

Legislation also provides for establishment of private schools on every level, subject to State licensing and accreditation regulations. These institutions may receive limited governmental aid for specialized purposes but are for the most part financially autonomous.

Education in the United States reflects generally the values and priorities of the society, beginning with the enduring national

---

[1] As its name implies, the United States is a union of 50 different States plus 7 jurisdictions located in outlying territories. Hereinafter the "State" means the subdivision of the Nation, not the entire Nation.

commitment to democracy and individual freedom. Diversity and flexibility historically have characterized the American approach to education. It is the goal of American education to provide every child with an opportunity for a quality education that will enable each person to achieve his or her highest potential in a free society and to function as an effective citizen in the modern world. Measures necessary to enhance excellence and improve quality in American education are among the chief concerns of leaders and administrators from the Federal to the State and local levels.

Generally speaking, the educational program is characterized by study and learning in reading, writing, and other communication skills; in arithmetic and other computational skills; in the sciences, scientific method, critical thinking, and problem solving; in American civilization -- history, values, culture, and the concepts and processes of democratic government; and in multicultural understanding, both with regard to the diverse ethnic heritage of the United States and, increasingly, in relationship to the history, culture, and traditions of other nations and peoples.

American education also endeavors to provide every student with some basic educational opportunities in art and music, health and nutrition, the practical arts, and physical education, and an introduction to the world of work, usually both in career awareness and in some forms of career preparation.

As in most other countries changes in American society inevitably affect the schools. They have had their influence on the educational systems and have contributed to increased program flexibility and the growing number of options for students.

As the student moves into secondary school, more educational choices become available to meet individual needs and interests. Increasingly, the educational program is beginning to experiment with utilization of the entire range of learning resources available in the total community instead of limiting itself to the confines of textbooks and formal classes in the school building itself. In many communities learning is being enriched through a variety of work-study and work-experience opportunities and through community volunteer and public service activities as part of a more broadly conceived integrated educational program.

The major priorities for education from the Federal perspective continue to be a commitment to quality, equal access and opportunity, basic skills, and serving the disadvantaged; with an expanded focus in specific areas such as youth employment, education for dropouts, persons with limited-English-speaking ability, and handicapped children; and student financial assistance at the postsecondary education level.

At the local or community level of education the priorities still seem to be focused on teacher and student accountability, inservice

teacher training, basic skills, and servicing children to maximize their educational experience. Education priorities continue to be dictated by the public more than by educational theorists or by practitioners.

The demand for accountability over the past few years has been accompanied by an emphasis on basic skills in instructional programs at the elementary and secondary levels and by efforts to define successful school performance in terms of student outcomes on standardized tests in which competencies are tested. Attempts are being made to revitalize the secondary school curriculum and to eliminate functional illiteracy among secondary school students. Attention is being given to the college-bound student, and a renewed awareness of the need for writing and science courses prevails. More than half of the State legislatures or school boards have adopted some form of formal testing of skills and have made competency testing a top priority. This trend is expected to continue. Concurrently, in a period of high inflation and unemployment, more students are giving increased priority to learning skills for labor market preparation along with traditional academic study. In research, the priorities have returned to basic research to some extent, and to a focus on evaluation methodologies and the learning process.

Immigration and a higher than national average birthrate among the Spanish-speaking population have changed demographic patterns and educational priorities in many areas of the country. Bilingual education, the teaching of English as a second language, and other ways to meet the challenge of ensuring equal educational opportunities for the linguistically and culturally different are now among the highest priorities.

Given the decline in enrollments and the accompanying stagnation of teacher employment (fewer entry-level jobs for new teachers without experience and fewer moves made from one district or institution to another by faculty), those now employed are more likely to be older, more experienced, perhaps tenured, and established in their assignments with no intention of moving. Where this is true, administrators are faced with the challenge of providing inservice training appropriate to this group, and updating and maintaining the quality of instruction in the face of rising costs.

Administrators are giving high priority to public relations within the community, both communicating with and listening to students, teachers, and community members to learn how schools can better serve educational needs for all ages and to find additional means for financing education.

The most obvious and significant new learning area that has developed and become a priority in schools at all levels is technology. This technology encompasses computers for schools, automation for libraries, training technicians in postsecondary institutions, and

the expansion of skills in job training. It is a new challenge as well as a priority for all facets of the education community to learn, adopt, and use, the new technology to the fullest advantage to reduce costs and to provide needed, up-to-date instruction; e.g., business education courses at the secondary level must offer students word-processing instruction. The range of jobs identified with computers include some which require training in technical skills offered by public institutions at various levels, or by proprietary schools; and the development of new kinds of jobs leads to the need for new curriculums, particularly where two or more fields of study intersect (biophysicists, information management specialists, electronic music composers) or where definitions of new fields are just emerging.

2. NEW LEGISLATION

The two most important statutes passed by the U.S. Congress during the 1979-80 period were the Department of Education Organization Act and the Education Amendments of 1980. The Congress also passed two other significant pieces of education-related legislation during that period: the Asbestos School Hazard Detection and Control Act of 1980 and the Refugee Education Assistance Act of 1980.

THE DEPARTMENT OF EDUCATION ORGANIZATION ACT

On October 17, 1979, President Carter signed Public Law 96-88 authorizing the creation of a Cabinet-level Department of Education. The idea of creating a separate, Cabinet-level Department had been discussed for many years. By 1979, approximately 160 large and small education and civil rights programs were scattered in various Federal departments and agencies. The larger ones were housed in the former Department of Health, Education, and Welfare (the Office of Education and the Office for Civil Rights) and in the Department of Defense (Overseas Dependents' Schools). The Department of Education Organization Act required the transfer of personnel and employees from the Department of Health, Education, and Welfare (now the Department of Health and Human Services) and four other Federal agencies.

Shirley M. Hufstedler, a former Federal judge, took office as the first Secretary of Education on December 6, 1979. Except for phasing in the Overseas Dependents' Schools, the following 6 months, as required by the authorizing legislation, were to be used to plan and organize the Department of Education. The Department's doors formally opened on May 4, 1980 — a full month ahead of schedule.

In addition to a Secretary of Education, the legislation provided for an Under Secretary and six Assistant Secretaries, one for elementary and secondary education, for postsecondary education, for vocational and adult education, for special education and rehabilitative services, for educational research and improvement, and for civil rights. Other principal officers were to be a General Counsel, an Inspector General, an Administrator of Education for Overseas Dependents, a Director of Bilingual Education and Minority Languages Affairs, and additional officers who would be responsible for: congressional relations; public information; management and budget; planning, evaluation, and policy development; monitoring parental and public participation in programs where such participation is required by law; and encouraging and promoting the study of foreign languages and cultures of other countries.

The Act also created the Intergovernmental Advisory Council on Education. The Council's 20 presidentially appointed members include elected State and local officials; public and private elementary, secondary, and postsecondary school administrators, board members, and

teachers; and parents of students and students from among the general public. The Act reauthorized the long-standing Federal Interagency Committee on Education "to assure that the procedures and actions of the Department and other Federal departments and agencies are fully coordinated."

The remainder of the Act dealt with the transfer of agencies, personnel, and functions from their former organizations into the Department of Education. The Department now conducts education programs that were transferred from the former Department of Health, Education, and Welfare, including rehabilitative services for the handicapped. Other transfers were made from the National Science Foundation, and the Departments of Labor, Justice, and Housing and Urban Development.

According to the Act, the Department of Defense Overseas Dependents' Schools would be transferred to the Department of Education within 3 years of its official opening -- that is, by May 1983. These schools serve children of U.S. military personnel stationed abroad. In 1979-80, approximately 140,000 children were enrolled in 273 dependents' schools located in 23 foreign countries. Teachers and support personnel in these overseas schools number about 11,000.

The Congress strongly reaffirmed State and community control of education in the Department of Education Organization Act.

> . . . The establishment of the Department of Education shall not increase the authority of the Federal Government over education or diminish the responsibility for education which is reserved to the States and the local school systems and other instrumentalities of the States. . . .

The exception to Federal interference in the administration, control, and operation of education by State and local governments and by educational institutions is civil rights. The Office for Civil Rights is authorized by the Act to ensure that all educational institutions receiving funds from the Department comply with those laws barring discrimination against students or employees because of their race, color, national origin, sex, handicap, or age.

THE EDUCATION AMENDMENTS OF 1980

President Carter signed Public Law 96-374 on October 3, 1980. It renewed and extended the basic statute -- the Higher Education Act of 1965 -- which has been amended several times. The 1980 amendments not only reauthorized several existing Federal activities, but they added new authorities that restructured and expanded Federal aid for post-secondary education.

The principal avenue of Federal support for higher education is through a series of student financial assistance programs authorized by Title IV of the Act. The generic names for the student assistance programs are: Pell Grant Program, named in honor of Senator Claiborne Pell, formerly known as the Basic Educational Opportunity Grant Program; Guaranteed Student Loan Program; Supplemental Educational Opportunity Grant Program; and State Student Incentive Grant Program. Thus, Federal assistance takes two forms: direct assistance to students as grants or employment, and loans made available to students and parents at a modest annual rate of interest.

This Federal activity is based upon two assumptions: a need for low-income students to have access to postsecondary education; and a need for students and their parents to have a choice among American public and private educational institutions. In the academic year 1980-81 almost half the students enrolled in postsecondary education received some form of Federal financial assistance, which amounted to over 6.5 billion dollars.

Other provisions of the Education Amendments are best discussed by title.

Title I provides financial assistance to States for statewide planning for higher education, for educational information to all citizens of the State, and for continuing education primarily to reach individuals who have delayed pursuing postsecondary education.

Title II provides general library support for training personnel to operate college libraries, and for research and development. It authorizes a special library research fund for colleges and universities and a nonprofit corporation to study the feasibility of establishing a national system that would give libraries access to a comprehensive universal collection of the contemporary information in periodicals.

Title III provides support for institutions that are financially hampered and for institutions with special needs. Since the Federal role in higher education is centered on equalizing educational opportunities, the Congress authorizes funds for those institutions which enroll a large number of low-income, disadvantaged students.

Funds are authorized in the Strengthening Institutions Program to assist institutions in strengthening academic quality, improving institutional management, and achieving a more stable fiscal base. The Aid to Institutions With Special Needs Program is directed toward improving planning, management, and fiscal accounting. A third program is a Challenge Grant which matches dollar for dollar new sources of revenues that these institutions are able to acquire.

Title IV, in addition to the student financial assistance programs previously mentioned, also authorizes a series of special

programs for students from disadvantaged backgrounds to enable them to gain access to postsecondary education and to remain in school. Another program provides support for an Office of Veterans Affairs at institutions that will help veterans enter and complete educational programs. A final program is aimed at assisting children of migrant agricultural workers to complete high school and gain a college education.

Title V makes funds available to two training programs: Teacher Corps, for training teachers to work with low-income disadvantaged students; and Teacher Centers, which operate on a State basis, for updating the instruction methods of elementary and secondary school teachers.

Title VI supports international education programs by authorizing funds for: (1) major national centers which offer foreign language study at the graduate and the undergraduate levels; (2) research, and (3) fellowships. A new program created by this title promotes cooperation between higher education institutions and American business by preparing business and economic majors in foreign language and area studies for careers in international business and trade.

Title VII provides assistance for modifying academic facilities, with special emphasis on energy conservation, access for the handicapped, and control of asbestos hazards. Low-interest rate loans are authorized for construction or renovation of facilities. However, the Congress has not appropriated funds for this program for several years.

Title VIII supports cooperative education, through training, demonstration, or research grants, to assist students in developing expertise in combination work-study programs.

Title IX continued support for graduate education, institutional support, the Training for the Legal Profession Program, and the Law School Clinical Experience Program. It merged all fellowships into the Graduate and Professional Opportunities Program. However, it did create a separate, new National Graduate Fellows Program to provide for specific fellowships in the arts, the humanities, and the social sciences.

Title X extended authority for the Fund for the Improvement of Postsecondary Education to support new, innovative, and highly visible research and development projects for the general improvement of higher education.

Title XI created the Urban Grant University Program. This program allows universities to work with local governments and communities on their chosen research and service projects to address critical problems of urban America. The statute defines an urban area as a city with a population in excess of 500,000.

Title XII contains a group of miscellaneous provisions: to establish a National Advisory Committee on Accreditation and Institutional Eligibility; to authorize studies of specific problems; and, especially, to provide for a new Federal-State Agreement which governs requirements for administering certain kinds of Federal education activities.

THE ASBESTOS SCHOOL HAZARD DETECTION AND CONTROL ACT OF 1980

The presence of asbestos fibers in the atmosphere is known to be a health hazard. The building construction trade in the 1940's and 1950's made extensive use of asbestos materials; consequently, some public buildings, including school buildings, are now considered hazardous to health.

The U.S. Congress, on July 14, 1980, enacted the Asbestos School Hazard Detection and Control Act (Public Law 96-270). The Act provides technical and financial assistance to enable State and local school districts to identify asbestos hazards in schools, and to develop means of replacing the hazardous substance with more suitable insulation materials. This Act also prescribes how rigorous health and safety standards are to be established and practiced in both the assessment and removal phases of the asbestos eradication effort.

THE REFUGEE EDUCATION ASSISTANCE ACT OF 1980

The United States has permitted various refugee groups to enter the country because of wars and ideological conflicts. Education for both children and adult immigrants eases their assimilation into the American social and economic structure. Education for them presents a special concern since the majority have little or no English-speaking ability. They must achieve some competency in the language as well as receive basic educational services.

For several years, the Federal Government offered limited financial assistance to State and local education agencies to enable them to accommodate Southeast Asian immigrants in their school systems and in adult educaton programs. In 1979 and 1980 a new wave of immigrants entered the United States from Cuba and Haiti. The exact number of Cuban and Haitian refugee school-age children for which education must be provided is still not known, but estimates range from 40,000 school-age children to more than 100,000 adults who need educational assistance.

The Congress, on October 10, 1980, enacted Public Law 96-422 — the Refugee Education Assistance Act of 1980 — to provide financial assistance for the education of Cuban and Haitian refugee children and adults. Over a 3-year period local education agencies in heavily

affected regions of the United States are to receive funds to provide the required educational services for these children, and State education agencies are to receive funds for the education of adult refugees. The law specifies a payment of $450 per year for each refugee child enrolled in a local school system, and $300 per year for the education of each adult refugee who desires and needs educational services such as basic skills instruction in the English language. The law offers added benefits to education agencies in excessively impacted regions; that is, those regions near major points of entry.

SUMMARY

The supportive role of the Federal Government in State and local education efforts over the last 15 years has been enhanced substantially, largely as a result of statutory enactments by the U.S. Congress. The majority of the financial assistance has been authorized to provide for a more equitable distribution of educational resources and to promote equal access to quality education for the Nation's children and adults.

The Federal Government has provided financial assistance to college students who could not afford a college or university education. This grant-in-aid activity has been buttressed by actions of the U.S. court system to enforce congressional mandates which established major social reforms in the Nation. These actions improved educational services for the underprivileged. The black, Hispanic, handicapped, and native American Indian populations, and other identifiable, needy students have been assisted in significant ways by the Federal Government.

3. SYSTEM OF ADMINISTRATION

ROLE OF THE STATE GOVERNMENT IN ELEMENTARY AND SECONDARY EDUCATION

On the State level, each State legislature enacts laws pertaining to elementary and secondary education. Within the context of these laws, educational policy and requirements for the elementary and secondary school levels are determined in most States by a State Board of education, and are carried out under the leadership of a chief State school officer and a staff of professional educators and support personnel in a State department of education.

Methods of appointment to the State boards of education differ according to State law and tradition. In some States, members are elected directly by the people; in others, they are appointed by the Governors; and in various cases some school board members have status ex officio by virtue of other positions they hold.

Among the 50 States and 6 "State jurisdictions," the head of the State education department, the chief State school officer (the title varies with the State), is appointed by the State board of education in 28, elected by popular vote in 18, and appointed by the Governor in 10.[1] The duties of the office normally include varying combinations of such functions as distributing State funds to local education authorities (an estimated 46 percent of all funds expended in public elementary and secondary education in the United States in 1978-79 came from State sources), administering or interpreting school laws, certifying teachers, helping improve educational standards through inservice training programs, and providing advisory services to local superintendents and school boards.

State boards of education with their National Association of State Boards of Education and chief State school officers with their Council of Chief State School Officers are strong voices on the national scene in relation to Federal education legislation and policy.

ROLE OF LOCAL AUTHORITIES IN ELEMENTARY AND SECONDARY EDUCATION

Each State (except Hawaii) has local administrative districts which have extensive authority and responsibility for establishing and regulating elementary and secondary schools. Each local school district has a board of education, usually made up of 5 to 7 members

[1] The Canal Zone, formerly considered as the seventh extra "state jurisdiction" is now handled by the Overseas Dependents' Schools and does not have a chief State school officer.

who have been appointed by higher officials or elected by citizens of the school district. Within the limits of State policy, the board operates the local school system through the school superintendent and his staff.

The functions of the board of education in determining educational policies, and of the superintendent of schools in executing these policies, include a broad range of duties and responsibilities. Together, the board and the superintendent are responsible for preparing the school budget. They usually have considerable latitude within broad State policy to determine most aspects of the curriculum. They are responsible for hiring teachers and other school personnel, providing and maintaining school buildings, purchasing school equipment and supplies, and, in most cases, providing transportation facilities for pupils who live beyond a reasonable walking distance from school. Their duties also include enacting rules and regulations consistent with State law and regulations of the State department of education governing operation of the schools. Thus, the limitations on the actions of school boards are those established by the State legislature and by the State education agencies, which have in most cases prescribed minimum standards for all local school districts.

School systems vary in size from small ones in rural areas, with a single one-room elementary school, to those in metropolitan areas with hundreds of schools of various kinds and thousands of teachers. Some States have regional service districts or centers to provide local school systems with consultative, advisory, and statistical services, and to handle regulatory functions.

Ability to provide improved educational facilities and opportunities more economically in larger school districts than in smaller ones continues to be the major reason for consolidation of school districts. In 1979, the United States had approximately 16,000 school districts.

ADMINISTRATION OF HIGHER EDUCATION

Generally speaking, there are three main kinds of degree-granting institutions of higher education in the United States: The 2-year community or junior college, the 4-year undergraduate college, and the university. The university normally includes undergraduate as well as graduate and professional education. Each category has both public and private institutions. Two-year institutions offer terminal degrees for 2 years of study (Associate Degrees), or preparation for moving into the last 2 years of undergraduate study at 4-year colleges. Four-year institutions, as previously mentioned, may offer undergraduate or graduate degrees; some have post-doctoral programs for advanced study -- generally based upon an individualized study or research plan.

Higher education institutions, both public and private, receive authority to function and to grant degrees from the State in which they are located or incorporated. This authority comes from a State's constitution, from laws passed by the State legislature, or license to operate and grant degrees. The Federal Government exercises no direct control over establishment of institutions or over the standards they maintain, except for those concerned specifically with preparing persons as career officers for the military. In specific areas, such as enforcement of the Civil Rights Act as it relates to higher education programs, the Federal Government has legal responsibilities.

Virtually all laws authorizing Federal assistance to institutions require that they meet minimum licensing and accreditation standards. However, the concept of "provisional" accreditation does permit some institutions to receive assistance while involved in formal and final accreditation. Generally speaking, institutions are re-accredited about every 5 years.

Most States now have some form of statewide policy planning and coordination system to guide the development of public higher education within the State. The most common kinds of arrangements for this purpose are coordinating boards and consolidated governing boards. In most statewide systems individual campuses have high degrees of institutional autonomy within the policies and overall plans established by State and/or institutional boards.

Many larger States have highly developed statewide systems of higher education. For example, California has a planned, three-tiered system: The California Community Colleges, with 106 2-year institutions; the California State Univerity and Colleges, with 19 institutions; and the University of California, with 9 campuses. The State University of New York represents a single, coordinated system totaling 64 2-year, 4-year, and graduate and professional institutions. In both States, individual institutions have a high degree of autonomy within the established plans and policies.

Nearly all higher education institutions receive some form of financial support from both State and Federal governments, although public institutions generally receive a substantially higher proportion of their budget from public funds. Other sources of income for both public and private institutions are student tuition and fees, endowment earnings, and contributions from philanthropic foundations and individuals. Many public community colleges, particularly those drawing students from several school districts, receive the bulk of their public funds from a separate community college district established for each institution for this purpose. In a growing number of States, public community colleges receive more than half their funds from their State government.

The principal internal policy and financial decisions affecting colleges and universities in the United States are made by their

boards of trustees (sometimes called boards of regents). The procedures for selecting members of the board are, in most instances, stated in the institution's founding charter, and, depending upon the institution, members may serve either specified terms or may be appointed for life. Public institutions may have trustees who are elected or who have been appointed by the State Governor. Private institutions, nondenominational or religious, usually have representatives of the institution's founding body serving as trustees. In recent years, many boards of trustees, both public and private, have attempted to broaden their membership to ensure wide representation of the diverse elements that make up the institution's academic and social environment.

ROLE OF THE FEDERAL GOVERNMENT

The role of the Federal Government in education is to provide encouragement, financial support, and leadership on educational issues of broad national concern, as appropriate within legislative mandates and constitutional constraints. It is also responsible for safeguarding the right of every citizen to have access to free public education and to equal educational opportunity. Other Federal departments and agencies have important educational activities of one kind or another, but the one most extensively involved in education, particularly at the elementary and secondary school levels, is the new Department of Education. (Chapter 2 discusses the Department's functions and structure.)

NATIONAL ADVISORY COUNCILS AND COMMITTEES

A number of councils and committees have been established by legislation, Executive Order, or administrative authority to advise various Federal authorities and programs. They provide opportunities for citizens to review and contribute to educational policy and program improvement. The largest number of Federal advisory groups on education are associated with programs administered by the Department of Education. The members are usually appointed by the President, the Secretary of the Department, or sometimes the agency head. Advisory councils and committees active during 1980 are listed in appendix A.

4. FINANCING

Education is the largest single enterprise in the United States. It is financed principally from taxes from various sources at the local, State, and Federal levels. Total expenditures for education (elementary, secondary, and higher education, both public and private) from all sources in the 1979-80 school year amounted to approximately $166 billion. Nearly 3 out of every 10 persons were directly involved in the educational process, as students, teachers, professors, administrators, or support staff.

Public elementary and secondary schools in the United States receive virtually all of their revenue from governmental sources. Income from other sources, such as gifts and fees, amounts to less than one-half of one percent of total revenue receipts. In the past, as shown in table 1, local governments contributed more than any other source, but in recent years the proportions from the Federal and State governments have increased. In 1978-79, for the first time, revenue from State sources exceeded that from local sources (45.7 and 44.5 percent — $40.2 billion and $39.2 billion -- respectively). The proportion from the Federal Government, which has been rising steadily, reached 9.8 percent (approximately $8.6 billion) in 1978-79.

By contrast, private elementary and secondary schools receive almost all their income from gifts and fees; their only other significant revenue source is the Federal Government.

Public school expenditures have continued to rise despite the fact that enrollments have declined. Expenditures totaled $86.7 billion in 1978-79, an increase of 80.5 percent over the $48.1 billion expended 7 years earlier. Increasing expenditures and falling enrollments have resulted in a rapidly rising current per-pupil expenditure, reaching $2,021 in 1978-79 (table 2).

Adjusted to 1978-79 purchasing power, the per-pupil expenditure for public schools in 1977-78 was $1,994, and $896 for private schools. This sizable difference is due primarily to the fact that between 60 and 80 percent of a school's total expenditure is for salaries.

More than three-fourths of the private school teachers are employed by church-affiliated schools where salaries, particularly those paid to members of religious orders, are lower than those paid to public school teachers. Also the expenditure figures for private schools probably do not take into account contributed services. In church-related schools this can be a substantial item.

In the higher education community, concern grew during the 1970's as inflation mounted, and administrators had to face up to the prospect of coming enrollment declines -- an unprecedented combination that could produce an extended period of lower revenue and higher

expenditures. This was a particularly unsettling outlook for an enterprise that had recently undergone its greatest period of growth and expansion. For the time being, however, enrollments and revenue are still rising. In 1978-79, total current-fund income -- public and private -- was $51.8 billion, up 63.5 percent since 1973-74, when it was $31.7 billion. In 1975-76 it was $39.7 billion and in 1977-78 it was $47 billion.

As shown in table 3, public higher education institutions received $34.5 billion in 1978-79, the bulk of it (46.4 percent) coming from State governments. On the other hand, private higher education institutions received the largest portion (36.5 percent) of their $17.3 billion in current-fund revenue from tuition and fees. Private institutions received proportionately more from the Federal Government than did public schools (19.1 and 13.1 percent of their current-fund revenue, respectively).

Current-fund expenditures and mandatory transfers (transfers which must be made to fulfill a binding legal obligation) reached $50.7 billion in 1978-79 ($33.7 billion at public schools and $17 billion at private schools). In recent years, expenditures at public institutions have increased at a much higher rate than expenditures at private institutions.

Table 4 compares total expenditures (Federal, State, and local governments combined) for all purposes with expenditures for education. The percent spent on education steadily decreased between 1973-74 and 1978-79. While education accounts for slightly more than one-seventh of all government expenditures in the United States, the proportion varies by government level, State and local governments spend substantially more than one-seventh of their total budget for education. The Federal Government, with its greater diversity of programs and responsibilities, spends proportionately less for educational purposes.

Table 5 compares total expenditures for education (elementary, secondary, and higher education, both public and private) with the gross national product over the past 50 years. During the 1970's, educational expenditures consistently amounted to between 7 and 8 percent of the gross national product. Educational expenditures for school year 1978-79, estimated at $152.1 billion, amounted to 7.1 percent of the gross national product. If this measure is used as a yardstick for assessing trends over time, expenditures are about four times as large today as they were in the midforties. A comparison of education, health, and defense expenditures as a percent of the gross national product is shown in figure 2.

5. ORGANIZATION AND STRUCTURE

Education in the United States is organized on three principal levels: the elementary (including preschool and primary), the secondary, and the postsecondary. (See figure 1.) In addition, programs of adult and continuing education are widely available in such variety that it is possible for American citizens in virtually any part of the country to be enrolled in formal courses or participate in informal programs of education and learning throughout their lives.

Compulsory education begins in most States at age 7 and continues usually until age 16. However, some States require attendance beginning at age 6, and others require attendance to continue until age 18.

Most young people spend considerably more time in school than the minimum number of years required by law. In fall 1979, for example, about 92 percent of all 5-year-olds were enrolled in preschool or first grade, and approximately 75 percent of all 17-year-olds were expected to complete the 12-year elementary-secondary school sequence and earn a high school diploma. Moreover, 45 percent of young people between 18 and 19 years of age and 21.7 percent of those aged 20 to 24 were still in school.

On the primary and secondary levels, the academic year usually begins in September and continues through the first or second week in June. The school day is approximately 6 hours' duration, usually during the period from 8:30 a.m. to 3:30 p.m. In most instances, particularly at the secondary level, the students are expected to do some additional study and school assignments outside the school period. On the postsecondary level, the academic calendar is much more flexible. The norm for a full-time student is 2 semesters of approximately 15 or 16 weeks each per academic year, but there are several variations on this pattern, including the trimester system (3 per year) and the quarter system (four 11-week periods per year). In the latter two patterns, the student normally does not attend school during the entire year but rather 2 out of 3 trimesters or 3 out of 4 quarters.

ELEMENTARY EDUCATION

Elementary education in the United States consists of 1 or 2 years of preschool (most commonly kindergarten) and 6 or 8 years of primary education.

Most public school systems provide kindergarten classes for children 5 years of age. Some also provide nursery school education for children 4-years-old and younger. The Head Start program, financed in part by Federal funds, is designed primarily for preschool children from poor families. About 10,000 Head Start Centers are in

operation throughout the States, the Trust Territories, and Puerto Rico.

Preschool education programs maintain a close relationship with the home and parents and aim to give the child useful experiences that will prepare him or her for elementary school. The programs are flexible and are designed to help the child grow in self-reliance, learn to get along with others, and form good work and play habits.

Although primary education may consist of 6 or 8 grades, the 6-grade school is most common. The main purpose of the primary school is the general development of children from 6 to 12 or 14 years of age (depending on whether the school is a 6- or 8-year elementary school). The program aims to help the pupils acquire basic skills, knowledge, and positive attitudes toward learning. Emphasis is placed on the growth of the individual child and the relation of the child's progress to his or her needs and abilities. The traditional subjects are considered tools for learning, and the teacher helps the child recognize problems, work out solutions, and evaluate the results. Some schools have ungraded classes in the first few years so that children may progress at their own speed in different subjects.

During the 1960's, the middle school concept began to take form in U.S. education. In essence a refinement of the junior high school concept of improving the transition from elementary to secondary education, the middle school usually includes grades 5 or 6 through 8, provides team teaching and other innovative instructional methods, and emphasizes curriculum exploration and gradual independence for students. Its purpose is to serve the educational needs of students in the early adolescent period between 10 and 14 years of age. Middle schools now number over 4,000 out of a total of about 62,000 elementary schools.

SECONDARY EDUCATION

Secondary or high school education in the United States begins at grade 7 or grade 9, depending upon whether the elementary education of a particular area extends through grade 6 or grade 8.

As shown in figure 1, in the 8-4 plan used in many schools, students pursue grades 1 through 8 in an elementary school and grades 9 through 12 in a secondary school. The 6-3-3 plan provides for an elementary school of 6 grades and a junior (intermediate) and a senior high school of 3 grades each. Smaller communities sometimes use the 6-6 plan with 6 years each for both the elementary and secondary school programs. The purpose of the different organizational plans is to make the best use of a school system's physical facilities, staff, and instructional resources within the framework of the system's established educational philosophy and goals.

During the early secondary years most students are going through the complex physical and emotional changes of puberty. Many are also making tentative choices of career goals. These years are therefore a period in which school guidance and counseling services are of considerable importance to the pupils' physical, emotional, academic, and career development.

By the beginning of grade 10, most pupils have decided whether they will follow a primarily academic program leading to university entrance, a vocational program leading to employment or specialized postsecondary training, or a general program which combines elements of both the academic and the vocational programs. In recent years, the so-called general program has been criticized as being in many instances neither sufficiently academic to prepare pupils for programs of college or university study nor sufficiently job-oriented to prepare them for employment.

All secondary school programs lead to the high school diploma and are offered in the same comprehensive institution in most school districts. This fact facilitates a combined curriculum like the general program, allows for transfer from one program to another, and provides the flexibility for students to develop individual schedules -- sometimes with the help of computers -- that combine highly desirable aspects of different curricular tracks. It is not unusual for a medium-sized comprehensive high school to offer 200 or more different courses. The comprehensive high school also provides the opportunity for young people with widely different career interests and a variety of social and economic backgrounds to have regular contact with each other in an open, democratic context.

Most secondary school students have completed the minimum years of schooling required by law a year or more before graduating from high school. About three-quarters of them remain in school, however, until they receive the high school diploma at the end of grade 12.

One reason for this is the flexibility of the American senior high school both in academic and vocational dimensions. In a growing number of schools, academically gifted pupils can take several additional hours per week of advanced science or mathematics during their last 2 years of high school. Most secondary schools offer some foreign language courses, most commonly Spanish and French. In many instances, pupils taking advanced courses may receive college or university credit.

In an increasing number of schools, secondary students of both sexes who are interested in programs of vocational-technical education may choose from a wide selection of job-related courses. Moreover, many schools provide the opportunity for school-coordinated work-study programs. Pupils enrolled in these programs spend part of the day in school and part of the day on a job. It is possible in a growing number of school districts to complete high school graduation

requirements in accelerated programs of study and thus graduate 1 or even 2 semesters early. Pupils who leave school before earning their high school diploma may work toward it at little or no financial cost in evening programs. Various types of summer study and enrichment programs are also available at all levels of education.

POSTSECONDARY EDUCATION

In academic year 1979-80, there were 3,152 higher education institutions in the United States that offered college-level work. Of this number, 1,954 were 4-year colleges and universities and 1,198 were 2-year community or junior colleges. In addition, some 8,000 nonacademic postsecondary schools in both the public and private sectors were offering job training in a wide variety of occupations. Normally, these vocational schools do not grant academic degrees but offer certificates or diplomas of completion of training in a given trade or skill.

The many and diverse degree-granting institutions in the United States comprise a broad spectrum of academic traditions, philosophies, and goals. More than half (1,677) are private institutions originally established by special interest groups for social, educational, or religious purposes, but the public institutions contain approximately 78 percent of the total enrollment in postsecondary education. Coherence and unity are maintained among so many different institutions through the work of accrediting agencies and associations, which are voluntary bodies established by institutions, professions, or specialized fields to develop and maintain standards. The Federal and State governments also require certain standards as a condition of financial assistance. Moreover, the professional integrity of the teaching staff and the demands of the economy for qualified graduates motivate most institutions to monitor carefully the quality of their institutional programs. Higher education institutions offer degrees on several levels.

The Associate's Degree

The Associate of Arts (A.A.) or the Associate of Science (A.S.) degree is usually earned at a community or junior college upon completion of 2 years of study. In many instances, it represents the same level of educational achievement as completion of the first 2 years of a 4-year college or university, and large numbers of students who have earned the associate's degree transfer to 4-year institutions. Other students, especially those who have completed programs of job-related training, normally enter the work force as mid-level technicians.

The Bachelor's Degree

The bachelor's degree normally requires 4 years of academic study beyond the high school diploma. In recent years, accelerated learning

plans, credit by examination or practical work experience, year-round study plans, and other innovations have enabled some students to complete the program in less than 4 years.

The two most common bachelor's degrees are the Bachelor of Arts (B.A.) and the Bachelor of Science (B.S.). The former normally requires more courses in the arts and humanities whereas the latter usually places greater emphasis on the sciences. Other common bachelor's degrees include the B.Ed. (education), the B.F.A. (fine arts), the B.Mus. (Music), and the B.B.A. (business administration). The B.Arch. (architecture) is often a 5-year program.

The B.D. (divinity) and the LL.B. (law) are professional degrees, usually of 3 years' duration, that in most institutions require a candidate to have earned first a B.A. or a B.S.

During 1979, a total of 921,390 bachelor's degrees of all types were conferred in the United States.

The Master's Degree

Master's degree programs vary considerably among the approximately 1,000 institutions that award them. The number of fields in which master's degrees are conferred is very large, but most are called Master of Arts (M.A.) or Master of Science (M.S.) degrees, or are professional degrees such as Master of Nursing (M.Nurs.) or Master of Social Work (M.S.W.). Programs leading to the degree usually require 1 to 2 years of advanced study in graduate-level courses and seminars. Frequently a thesis is required and/or a final oral or written examination. Requirements may differ not only among institutions but among disciplines within an institution as well.

During 1979, a total of 301,079 master's degrees of all types were conferred in the United States.

The Doctor's Degree

The doctorate, usually the Doctor of Philosophy (Ph.D.), is normally considered the highest academic degree conferred in the United States. It attests to the ability of its holder to do original research of a high order. Since work at the doctoral level is highly individualized, the specific requirements may vary widely. In general, however, the degree requires a minimum of 2 years of course work beyond the master's degree level, success in a qualifying examination, proficiency in one or two foreign languages and/or in an equivalent research tool (such as statistics) that may be considered appropriate to a particular field of specialization, and completion of a doctoral dissertation that is normally intended to represent an original contribution to knowledge.

During 1979, an estimated 33,000 doctorates of all types were conferred in the United States.

First Professional Degrees

In addition to the foregoing degrees in a wide range of academic fields, during the year ending June 30, 1979, a total of 68,848 first professional degrees were conferred in: Dentistry (D.D.S. or D.M.D.), law (LL.B. or J.D), medicine (M.D.), theology (B.D. or M.Div., or Rabbi), veterinary medicine (D.V.M.), podiatry (Pod.D. or D.P.) or podiatric medicine (D.P.M.), optometry (O.D.), osteopathy (D.O.), chiropractic medicine (D.C. or D.C.M.), and pharmacy (D.Phar.). The educational prerequisites and length of study required for these degrees vary with the field of study. For example, in medicine most students, after receiving a bachelor's degree, complete 4 years of medical studies before receiving the M.D. degree. Subsequently, they often enter into 3 years of residency training in a specialty.

CURRICULUM

State and local education authorities are responsible for determining and developing public school curriculum. There is no national public curriculum at any level of education. In fact, the U.S. Congress carefully monitors Federal assistance for curriculum development to assure that State and local control is maintained. However, the Federal Government does influence public school curriculum in various ways.

Federal Efforts To Strengthen Curriculum and Teaching

In the 1960's and early 1970's the U.S. Government supported projects in which leading scholars in mathematics, languages, and physical and social sciences worked with experienced teachers to create new curriculums for elementary and secondary schools. Recent studies have found that most of these programs were not widely used. Instead, the curriculum for most schools appears to be based almost entirely on textbooks produced by commercial publishers.

There are many reasons for the apparent failure of the "curriculum reform movement," but a common explanation is that the materials were too complex for teachers to use easily and too sophisticated for all but the ablest students. Therefore, they did not fit in well with the emphasis in the 1970's on equity and utilitarian trends.

Also since the 1950's the Federal Government has funded inservice training for teachers in selected disciplines and in those of critical need. In the early years, training took the form of institutes and graduate fellowships, such as those funded under the National Science Foundation Act (1950), the National Defense Education Act (1958), the

Higher Education Act (1965), and the Education Professions Development Act (1976).

Initially, the institutes and fellowships drew participants from a national pool. Usually only one teacher from a particular school attended a given institute or participated in a given fellowship program. At first these efforts addressed the need to improve subject-matter competence. Gradually, attention to pedagogy was increased; gradually, too, the need to work with school teams or faculties, not just individuals, became apparent. Later, some of the National Science Foundation institutes began to focus their training efforts on implementing the curriculums funded by the Foundation and other Federal agencies. This became the Foundations' center of interest for several years in the 1970's. Then the practice was challenged by Congressmen who thought that Federal support for implementing federally funded curriculums came dangerously close to forcing a national curriculum on local schools.

Institutes and fellowships have now given way to a variety of federally funded, but locally determined and oriented, projects that mix modes of training. In a Teacher Corps project, for example, one might find university, school, and community personnel collaborating in training a school staff through demonstrations, team teaching, workshops, coursework, observation, and supervision. The level of Federal funding for both curriculum development and teacher training, once high and fairly well concentrated in selected fields, is now minimal and in the years 1978 through 1980 scattered across many programs in areas of high priority need: basic skills, special education, teacher centers, cultural understanding, ethnic heritage studies, metric education, and the like.

State Responsibility for Elementary and Secondary School Curriculums

The States' responsibility for public school curriculums derives from their broader responsibility for education, a power reserved to the States by the U.S. Constitution. States influence curriculum in four major ways: by establishing the requirements for students to earn high school diplomas within the State; by selecting the texts to be used in classrooms; by developing minimum-competency tests; and by providing technical assistance. Most States require satisfactory completion of a minimum number of courses, including certain specific courses in English, mathematics, science, social studies, and physical education. Some States specify, for example, that one or more social studies courses be in American history or the history of their particular State. Local school districts may add curriculum requirements of their own, such as local history or sex education.

State officials select textbooks and other curriculum materials for elementary schools in 22 States and for secondary schools in 21 States. Local school officials make the selections in the remainder of the States. Whether the selection occurs at the State or local

level, the State or local board of education usually delegates the responsibility to a textbook commission or committee made up of professional educators and community representatives. Most commonly, textbook commissions approve several textbooks and materials for each course, and local authorities make selelctions from the list.

The number of States with State adoption systems has been stable for many years. However, several States have modified their systems to increase the participation of local school authorities. Also, there is a trend toward including more materials on State lists.

Much content selection and arrangement -- in essence, curriculum development -- is done by private publishing firms which pay educators and other specialists to prepare teaching materials. These firms then submit the finished products to the State and local textbook commissions for approval. In some school districts, teams of teachers and curriculum experts develop teaching materials in a wide variety of fields. Usually teachers may choose a program of study from these materials or from the variety of commercially published or, sometimes, university-prepared courses of study that have been approved by local or State school authorities.

Minimum-competency testing is a fairly new means by which States may influence local curriculum. It originated in the midseventies. Some form of minimum-competency testing now exists in 38 States (table 21). Initially, States mandated that students meet a minimum standard of competency before receiving a high school diploma. Gradually, testing has been extended downward, so that now many States conduct minimum-competency testing at two or three checkpoints in schooling to identify students not progressing satisfactorily, and to give them remedial help. Reading, writing, and mathematics are the three subjects most commonly targeted for minimum-competency testing, typically in grades 3 or 4, 6, 8 or 9, and 11 or 12.

Technical assistance, the fourth major means by which States influence local curriculum, is delivered primarily by State curriculum specialists in the various fields (e.g., science and home economics). Among other activities, they work with local district personnel individually, conduct regional and statewide workshops, and organize the development of State curriculum guides (suggested, not mandatory).

Despite the decentralized nature of American education, a certain pragmatic standardization of curriculum exists. First, the textbook is probably the greatest determiner of curriculum, and many textbook publishers have successfully achieved very large markets among the schools. Second, college and university entrance requirements strongly affect curriculum decisions at the secondary school level; local school authorities want their graduates to be readily admitted to higher education institutions. The influence is often inordinate; in some cases a high school's curriculum may be wholly or largely college preparatory, even though the college-bound population may be

only about 50 or 60 percent of the high school's student body.

Third, national achievement and aptitude tests developed by private, nonprofit organizations influence secondary school curriculums, and, to some extent, elementary school curriculums. The national norms on these tests tend to be seen as norms for achievement locally and, consciously or unconsciously, teachers begin to teach to the tests. The local norms for some upper socioeconomic communities are higher than the national norms.

One influential testing program is the National Assessment of Educational Progress (NAEP), a periodic measurement of the skills, attitudes, and knowledge of representative samples of 9, 13, and 17-year-olds in reading, writing, mathematics, science, social studies, and other subjects. NAEP's impact on curriculum is more indirect than direct; it is felt primarily through the many State assessment programs independent of, but patterned after, NAEP.

The two tests most widely used for college and university entrance are the Scholastic Aptitude Test (SAT) and the American College Testing Program (ACT). A recent decade-long decline in average scores on the Scholastic Aptitude Test has generated considerable controversy in educational circles. Some educators and parents point to the decline as evidence of a deterioration in the quality of American schooling, and argue for more rigor and discipline. Other educators and parents counter that many variables account for the decline, among them, the fact that the population taking the tests has changed significantly as higher education has become more accessible to lower socioeconomic groups. Also, they contend that there are many modes of communication today (the audio and visual modes becoming more prominent), so reading is less critical as a survival skill.

State Influence on Postsecondary Curriculum

States do not have a direct influence on the curriculum in public, postsecondary academic institutions. There, curriculum decisions are made most often within academic departments, and individual professors are responsible for the content of their courses. The institutions usually require that a student earn a given number of credits. Many also require a student to take a specified number and sequence of courses in a major field of study before conferring a degree.

States can exercise considerable control over postsecondary academic institutions, both public and private, through their licensing authority. For example, through power delegated to professional standards and licensing boards, the States can require that professionals such as teachers, doctors, attorneys, and engineers complete a minimum number of courses from a specified list of academic or professional subjects to qualify for a license to practice.

TEACHER EDUCATION

Preservice Education

All preservice teacher education in the United States is at the higher education level. Both public and private universities have departments, schools, or colleges of education, as do those institutions that during the past few decades have developed from State normal schools into State colleges. In addition, there are a few institutions that specialize exclusively in preparing educators to teach music, art, or severely handicapped children. In all, 1,300 institutions offered teacher-education programs at the beginning of the 1980-81 academic year.

Candidates for teacher education programs, in most cases, must have completed 1 or 2 years of general college undergraduate study. They are then accepted into teacher-education programs on the basis of their college academic records and personal interviews.

The minimum requirement for teaching on the elementary and secondary level in any of the 50 States is now the bachelor's degree. This is conferred after 4 years of study at the postsecondary level. Approximately 20 States require that teachers acquire a graduate degree within 10 years. Incentives to pursue further study, beyond what is required, include salary increments and free tuition. the ratio of master's degrees to bachelor's degrees held by teachers has increased from 1 to 5 in 1972-73 to almost 1 to 2 today.

All States require that the program of studies followed by future teachers include general education, specialization in a teaching field, and professional education courses. Recent data show that throughout the country teacher preparation programs are built on a basic foundation of general "liberal arts" education in which the humanities, natural sciences, and social sciences are included. To this general education foundation and special study in a teaching specialty, pedagogical studies are added. About 70 percent of the preservice study for elementary school teachers is in the clinical and pedagogical field; about 20 percent for those studying for positions in the secondary schools. All States now require that future teachers have full-time, student-teaching experience in a public school classroom. This must be under the supervision of an experienced teacher approved by the college or university teacher education program in which the students are enrolled.

In addition to at least 2 years of broad, general education, prospective elementary teachers complete 1 to 2 years of pedagogical study, and often, but not always, major in education. Prospective secondary teachers, for the most part, major in an academic field; e.g., English, history, mathematics, or science while taking only 1 semester of education courses.

The certification of teachers in certain subjects or at certain levels is regulated by an agency in each State. A certificate or license to teach is issued by each State once its requirements are fulfilled. There are several types of certificates issued, based on training and need: Permanent (regular), probationary, and temporary. The specific certification titles vary widely from State to State.

Inservice Education

Most school districts in the country encourage or assist elementary and secondary teachers in one way or another to continue their professional growth. Professional development opportunities frequently available to teachers are formal courses and workshops. Those that attract the most participants tend to focus on problems that affect large numbers of teachers, such as instructing handicapped children in regular classes, meeting the needs of children from low-income families, and providing bilingual and multicultural education.

Not only do higher education institutions provide these programs, but many large school districts and several smaller ones sponsor workshops using their own staff, with or without outside consultants. Many districts have established inservice training centers, which often include a reference library, and audiovisual center, workrooms for developing instructional materials, and rooms for seminars or lectures. With increased frequency, the control of teacher centers is being entrusted to the teachers themselves.

Inservice opportunities also include visits to other schools, availability of consultants for individual problems, and certain days (often called "inservice days") on which pupils are excused from school and teachers participate in special programs of instruction or enrichment.

Many school districts encourage their teachers to participate in inservice education in a variety of ways. They may (1) require a prescribed number of courses before a teaching contract can be renewed; (2) subsidize tuition fees at the university; (3) increase the salary of teachers who earn higher degrees, complete a given number of credit hours, or participate in other approved inservice educational activities; (4) release teachers from classroom responsibilities and provide travel expenses to enable them to attend professional meetings; (5) approve sabbaticals; or (6) legitimatize released time during the day.

Chapter 6 discusses significant trends in inservice and preservice education.

6. EDUCATIONAL TRENDS

STATISTICAL TRENDS

Overview

Education was the primary occupation of approximately 62.1 million Americans in the fall of 1979. Included in this total were 58.5 million students, 3.3 million teachers, and about 300,000 superintendents, principals, supervisors, and other instructional staff members. Thus in a nation of 225 million people, nearly 3 out of every 10 persons were directly involved in the educational process. It is not surprising, therefore, that so much public attention is being focused upon the schools and colleges. A substantial portion of national resources is allotted to this vital enterprise. Increased support for education in recent years has come from Federal, State, and local governments, as well as from a variety of private sources. Total expenditures of educational institutions amounted to approximately $166 billion during the school year 1979-80.

Schools and School Districts

The United States had approximately 15,900 local school districts in the fall of 1979. This new low was achieved through the elimination of more than 600 school districts over a 5-year period (figure 3). The number of school districts continues gradually to decline through the process of reorganization and consolidation. In school year 1945-46, there were more than 101,000 school districts in the country.

The number of public elementary schools has also been declining (table 6). This trend reflects school consolidation and, in many instances, the closing of small rural schools. The number of public secondary schools changes very little from one year to the next. In 1978-79, there were about 62,900 public elementary and 25,300 public secondary schools.

Enrollment

Enrollment trends at the elementary, secondary, and higher education levels are essentially determined or strongly influenced by the number of children or young people in the appropriate age group. From the midsixties to the midseventies there was a substantial decline in the annual number of births in the United States. The lower birth rate has had a significant effect upon elementary school enrollment, and its impact has been felt at the high school level during the late 1970's. Demographic trends will be a major factor in the enrollment of colleges and universities in the 1980's.

Enrollment in elementary schools (kindergarten through grade 8) reached an all-time high in the fall of 1969. Subsequently, there

have been small decreases each year. High school enrollment (grades 9 through 12) peaked in 1976, and college enrollment attained a new high in the fall of 1979. Total enrollment at all levels reached a maximum of 61.3 million in the fall of 1975.

Further increases in total enrollment are not anticipated in the immediate future. Reflecting a continuing decrease in the number of children 5 to 13 years of age, elementary school enrollment is expected to decline until the mideighties. A decrease in the 14- to 17-year-old population will lead to lower high school enrollment much of the time during the 1980's. No appreciable decline in college enrollment is expected until after 1981, when the college-age (18- to 24-year-old) population reaches its peak.

Between fall 1978 and fall 1979, enrollment in kindergarten through grade 8 decreased from 32.2 to 31.6 million, or nearly 2 percent; enrollment in grades 9 through 12 was down more than 2 percent to 15.3 million; and college enrollment rose nearly 3 percent, from 11.3 to 11.6 million. Table 7 gives additional information on enrollment by level in public and nonpublic schools.

Over the past decade there has been a strong upward trend in the proportion of 3-, 4-, and 5-year-olds enrolled in preprimary programs. The latest available data — for October 1979 — indicate that about one-fourth of the 3-year-olds were enrolled in nursery schools or kindergarten. At the same time more than two-fifths of the 4-year-olds and more than four-fifths of the 5-year-olds were participating in preprimary programs (table 8).

Enrollments in private elementary schools declined during the early 1970's, leveled off, then began to fall again in the latter part of the decade to an estimated low of 3.6 million in 1979. Private high school enrollments actually increased throughout the decade to a peak of 1.5 million (estimated) in 1979.

Private schools comprise an increasingly important segment of the Nation's educational system. As of fall 1978 (the latest year for which detailed data are available), private schools enrolled 10.7 percent of all elementary and secondary school children.

Table 9 shows the long-term growth of high school education in the United States. From 1890 to 1979, while the population 14 to 17 years of age little more than tripled, enrollment in grades 9 through 12 increased 43 times, from 360,000 to 15.3 million. In 1890, only about 1 person in 15 in the 14- to 17-age group was enrolled in school; in 1979 the figure was more than 9 out of 10.

For more than half a century the Federal Government has assisted State and local governments in their efforts to provide vocational education programs. In recent years, various new programs have been added to the traditional classes in agriculture, home economics, and

trades and industry, and the number of participants has increased at a rapid rate. Approximately 17.3 million students were enrolled in federally aided vocational classes in 1979 (table 10).

The number of institutions of higher education in the United States continues to grow (table 11). Approximately 150 colleges, universities, and professional schools were added in the past 5 years, bringing the total in 1979-80 to more than 3,150 institutions (including branch campuses). Of this total, about five-eighths are 4-year institutions offering bachelor's and/or higher degrees, and the remaining three-eighths are 2-year colleges. Fifty-three percent of the institutions are privately controlled, and 47 percent are publicly controlled. The public institutions, which enroll about 78 percent of the students, tend to be substantially larger than the private ones.

Another trend in American higher education has been toward coeducation. In the past 10 years the number of institutions for men has declined by 59, and the number of institutions for women dropped by 115. During the same period the number of coeducational institutions rose by 782.

College enrollment in 1979 was about 2½ times larger than it was in 1963. Part of the increase may be attributed to the fact that there are more young people of college age. Table 12 shows important factors that have contributed to the increase. The proportion of young people attending college has risen, and there has also been a substantial increase in the college attendance of persons over 25 years of age.

However, the college-age population is expected to decline after 1981, and emerging trends in college attendance rates will determine what happens to higher education enrollments at that point. In recent years, the increased attendance of women, older students (age 25 and over), and part-time students has played a major role in maintaining college enrollments at a high level (figure 4 and table 13).

Teachers

The teaching staff in American schools and colleges grew rapidly during the 1960's, keeping pace with and frequently exceeding the rise in enrollments. The growth rate has been more modest in recent years. Between the fall of 1978 and of 1979, there was virtually no change in the number of teachers below the college level. The employment of teachers at both the elementary and secondary levels was characterized by stability. The increase in instructional staff at the college level is estimated at about 2 percent (table 14).

The long-range trend has been for the number of public elementary and secondary school teachers to grow at a somewhat faster rate than school enrollment. In recent years, when enrollment declined slightly, there was no accompanying decrease in the number of

teachers. Consequently, there has been an improvement in the pupil-teacher ratio. There were 19.1 pupils per teacher in public schools in 1979 as compared with 20.8 pupils for each teacher 5 years earlier (see table 15).

High School and College Graduates

Approximately 3,134,000 persons graduated from high school in 1979 (table 16), and 1.3 million received bachelor's and higher degrees from American colleges and universities. Included among the earned degrees conferred were 990,000 bachelor's and first professional degrees, 301,000 master's degrees, and 33,000 doctorates. Over the past two decades, the annual number of high school graduates nearly doubled, the number of bachelor's and first-professional degrees almost tripled, the number of master's degrees increased fourfold, and the number of doctorates grew 3½ times (table 17). These high growth rates reflect the rise in the number of young people of high school and college age and also a substantial increase in the proportion completing each level of education during 1979.

Data on earned degrees conferred by major field of study in the year ending in June 1979 are shown in table 18. At the bachelor's level more degrees were conferred in business and management, education, and the social sciences than in any other fields. The traditional professions of law, health, and theology were the leaders at the first-professional level. The leading fields in terms of the number of master's degrees conferred were education, business and management, and public affairs and services. More than 3,000 doctorates were conferred in each of four fields: education, biological sciences, social science, and physical sciences.

School Retention Rates and Educational Attainment

Table 19 shows the increase in school retention rates from the fifth grade through college entrance since the early 1930's. During this period, the proportion of fifth graders who went on to graduate from high school increased from about 30 to nearly 75 percent. In other words, the rate of graduation is now about 2½ times that in 1932. The increase in college attendance is even more striking: An estimated 45 percent of fifth graders eventually enter college; in 1932, the comparable figure was 12 percent.

Since 1940, the U.S. Bureau of the Census has collected statistics on the educational attainment of the population in this country. Table 20, which is derived from Census publications, compares the educational attainment of the population 25 to 29 years of age with that of the total population 25 years of age and over. In the March 1980 survey, almost 86 percent of the 25 to 29 age group reported that they had completed the equivalent of a high school education, as compared with 69 percent of all adults. Twenty-three percent of the young adults identified themselves as college

graduates, while 17 percent of all adults had completed 4 or more years of college. Trend data for the past 70 years concerning the level of educational attainment in the United States are shown in figure 5.

Recent years show an increase in the number of Americans completing, on the average, more years of school, and there has been a growing concern by the public regarding the achievement levels of students in the elementary and secondary schools. This and other concerns have encouraged a number of States and local public school systems to adopt minimum competency testing. It is expected that these tests will be used for a number of purposes, including: grade promotion, high school graduation, early exit, and remediation. Table 21, specifically, denotes the 38 States which in 1979 used minimum competency testing.

TRENDS IN ELEMENTARY AND SECONDARY LEVEL CURRICULUMS

In recent years, several trends have been discernible in public school curriculum. Among them are emphasis on basic skills, parent involvement, career education, alternative education, multicultural education, and consumer education.

Minimum Skills

The most noteworthy trend in curriculum for elementary and secondary schools in the country continues to be the emphasis on the basic skills of reading, writing, and mathematics. A majority of States now have provisions for testing students to be sure they do not receive high school diplomas without having achieved "minimum competency" in the basic skills, and sometimes in other areas. In some cases the public demand for improved performance in basic skills has led to greater State control of curriculum, but in most States local school districts continue to make decisions about what is to be taught.

The tendency to teach and test measurable skills in isolation from their meaningful use led a number of professional education associations in 1979 to issue a statement listing "The Essentials of Education," published by the Association for Supervision and Curriculum Development.

The renewed emphasis on basic skills is reflected in and supported by pressures for State assessment, minimum-competency testing, competency-based education, mastery learning, or outcome-based education.

The newer programs use individualized instruction or the group-based methods advocated by Benjamin Bloom of the University of Chicago. Curriculums for such programs generally require well-defined objectives and performance measures which can be used to assess individual mastery.

In a small number of States, the basic skills are defined more broadly than the three R's: for example, the definition of writing expands to communication when it includes both written and oral skills. Controversy continues about the wisdom and attainability of the goals of the "back-to-basics" movement and the equitability of its methods. Meanwhile, the emphasis on basic skills appears to be diminishing the attention to traditional school subjects such as science, mathematics, social studies, the arts, and other components of general education.

Parent and Citizen Involvement

Still discussed far more than practiced, the involvement of parents and citizens in curriculum decisions is, nonetheless, a discernible trend. Its origin stems from the civil rights movement of the 1960's and the black population's expectations to achieve more equity. In the absence of desegregation, there developed in some localities -- New York City, for example -- a call for community control of schools. The Federal Government gradually responded to these expectations, not only with desegregation suits but also with mandates for parent and citizen involvement in education. The Head Start and Follow Through programs were early examples of mandated involvement; others followed in the 1970's.

The movement to involve parents and citizens in education is also gaining momentum because of the Nation's difficult economic problems. Necessary constraints are generating a closer examination of the allocation of resources. The very concept of public education is being questioned, primarily because of increased costs and a perceived decrease in quality. As the number of parents with school-age children diminishes in relation to the population of older Americans, parents and educators alike have a high stake in convincing the citizenry of the value of public education.

Indicative of the gain in momentum was the formation in early 1981 of the National Coalition for Parent Involvement in Education (NCPIE), an unusual alliance of education organizations (e.g., the National Education Association, the American Association of School Administrators, and the National School Boards Association) and civil rights advocacy groups (e.g., the Children's Legal Defense Fund and the Lawyers' Committee for Civil Rights Under Law). NCPIE's aim is to improve public education by promoting policies and practices that involve parents and citizens in education.

Career Education

Career education, a curriculum trend initiated by the Federal Government in the late 1960's, continues to garner attention in the Nation's schools. Its primary purpose is to raise children's awareness -- from elementary school to higher levels -- of the role and value of work, the broad range of career opportunities, and the

relevance of education to the world of work.

One effective approach is Experience-Based Career Education. High school students perform study-related work as interns for private or public enterprises whose employees serve as instructors. Students learn the skills, behavior, and value of entry-level jobs. Findings demonstrate that as they gain a more realistic understanding of their career options the students' academic achievement and attendance improve. Moreover, they develop a sense of the relationship between the basic skills and the world of work, and become more enlightened about career opportunities and direction.

Alternative Education

Alternative education programs for students have continued to grow in number. Alternative education takes many forms: for example, schools with special themes (the arts, science, music, etc.), schools for highly motivated students, schools for the gifted, schools for underachievers, schools focusing on the basics, and schools for disruptive and disaffected students. Among the characteristics tending to unite such schools are informality of structure and operation, a broad curriculum, a small enrollment, and some collective decisionmaking. Alternative schools are primarily a phenomenon of large school systems -- they exist in 80 percent of the school districts serving 25,000 or more students -- but alternative programs are also increasingly evident in smaller systems.

Multicultural Education

Multicultural education -- teaching about cultural diversity and the dignity of all people, regardless of racial or ethnic origin -- grows out of the desegregation and bilingual education movements of the 1960's and 1970's. This emphasis on the contribution and value of each diverse culture to society is in contrast to the earlier notions of America as a melting pot. Multicultural education is a natural outgrowth of the stress on equal educational opportunity, human and civil rights, and the effects the actions of other nations are having on American life. This latter phenomenon has tended to broaden the outlook of multicultural education to look beyond our shores to a more global perspective.

Consumer Education

Advocates of consumer education maintain that it is essential to an enlightened citizenry. Related to the basic skills in that it focuses on some basic life skills (and thus has received some attention in minimum-competency legislation), consumer education attempts to develop intelligent consumers of products and services. It treats such elementary, but important matters, as balancing a checkbook and comparative shopping to such complex matters as knowing one's legal rights and responsibilities.

Objections to Books and School Programs

Different advocacy groups, critical of school programs and of books they consider not to be consistent with their beliefs have become increasingly vocal in recent years. In many States there has been controversy over the teaching of evolution, use of books containing objectionable language or references to sex, and other matters said to reflect "secular humanism" in schools. As a result, educators are becoming increasingly cautious about the materials they select.

General Education

Educators and citizens are becoming concerned about the proliferation of courses and the fragmentation of course content that occurred in the 1960's and 1970's, with reduction of graduation requirements, attempts to make schooling relevant to restless students, and efforts to respond to social problems such as the endangered environment. Many schools now appear to lack a clear definition of the knowledge and skills needed by all students.

Several major studies are underway which may result in a new definition of general education at the high school level. For example, the Association for Supervision and Curriculum Development has established a network of 17 high schools in 14 States. The schools will work together for the next several years to modify the secondary curriculum to meet the needs of students in the changing society.

Other Trends

At the present time there is a regression from large-scale curriculum development funded by the Federal Government, primarily because of concern about Federal intervention and because its impact is in doubt. More support is now being given to local adaptation and use of existing curriculum materials. Two Federal programs new in the 1970's -- the National Diffusion Program and the Teacher Centers Program -- follow this approach.

The National Diffusion Program. -- Established in 1974, this program promotes the widespread adoption of exemplary programs and practices through three main mechanisms.

- The Joint Dissemination Review Panel (JDRP), which screens programs and practices for possible dissemination.
- Programs That Work, a widely disseminated resource book of JDRP-approved programs and practices.
- The National Diffusion Network, which provides technical assistance, training, and materials to groups adopting JDRP-approved programs and practices.

The Teacher Centers Program. -- Teacher centers are typically local resource/work centers where teachers can be assisted with everyday classroom problems. Federally funded teacher centers are expressly intended to be places where teachers may "develop and produce curricula designed to meet the educational needs of the persons in the community area," as well as places where teachers may receive training. Teacher centers funded by other sources -- State and local governments and private agencies -- also are conceived as places for curriculum development. In most centers, however, the emphasis thus far appears to be on the training function.

The teacher center program illustrates the interdependence of various levels of influence on curriculum and training. Some teacher centers receive their major funds from the Federal Government, their direction from the local community, and technical assistance from the State. Others obtain funds from many sources while retaining their independence.

TEACHER EDUCATION

Preservice Education

Two essentials describe trends in preservice education over the past decade. The first is knowledge production, the acquisition through research of greater wisdom about teaching. The second is the development and implementation of that new knowledge in an operational, onsite situation.

Knowledge Production. -- This essential focuses on five general concerns. First is training itself. As a result of over 200 studies, it is now possible to prepare prospective teachers so that they can call upon a wide variety of strategies to deal with diverse situations and environments. Materials have been generated to support the position that teacher-training institutions can provide candidates with greater flexibility in their teaching styles.

Second, the past decade has seen considerable development -- but modest research -- of materials dealing with multicultural and bilingual education.

Third, wherever possible, efforts are being made to relate training to situations in schools which are part of a broader school improvement effort. It does appear that this kind of training, powerful because it is reality-based, may deter subsequent alienation by young teachers from children. A renewed interest in the internship as a prerequisite for entry into the profession is a significant part of such training.

Fourth, the population from which candidates for teaching are drawn has become more limited. Some of this results from the

disadvantage which education suffers in competing with higher paying professions. At the same time, the opening of other careers to women has removed education's near-monopoly upon that large share of the labor force. While other professions have gained, education -- and particularly classroom teaching -- has not. To cope with this phenomenon teacher educators have found it necessary to experiment with new content and methods of training.

Fifth, innovations in teacher training at the university level remain minimal. The barriers to significant institutional and/or technological change have been eased only slightly. The past few years of inflation, decreasing budgets, fewer teaching positions, and public apathy about teaching have contributed to institutions of higher education placing less resources in teacher education.

Development and Implementation. -- The general application of knowledge has been the basic emphasis in specific and largely federally funded programs. Teacher Corps has been the major Federal program having preservice teacher education as one of its focuses.

First, materials developed in the programs for multicultural, bilingual, special, migrant, and correctional education are also being used in many preservice programs. Most of these were prepared in response to immediate concerns of teachers in the classrooms. They are now being used an an integral part of programs for prospective teachers.

Second, universities and colleges have accepted the value of sharing ownership in their teacher-education programs with others. This sharing particularly includes the school districts that eventually become employers of the graduates. It also includes members of the immediate community, the organized profession, and the State agency. This is an important decision -- the involvement of the practitioner in policy — for a college of education to undertake. At the Federal level, Teacher Corps has been the foremost advocate of the advantages of enlarging such collaboration to all those who have an important stake in teacher education at all levels, including preservice.

Third, teachers are acquiring much greater experience and training in the process of socialization into the community and its schools and every beginning teacher's experience includes this type of training. The National Institute of Education (NIE) has supported considerable research on this topic and both the schools and the colleges have become increasingly aware of its importance to the success of a teacher. The current interest in the internship is also reflected here.

Fourth, preservice programs are devoting more of their pedagogical studies to the integration of research and practice. The role of the teacher as a producer, consumer, or supporter of research is

beginning to receive more attention by the teachers' union. This attention does, however, follow upon some strong experiences which have been supported at the Federal level.

Fifth, higher education seems to be more sensitive to the training of leadership and faculty personnel. Institutions now recognize this training as a vital element of a teacher-education program; and, of course, the continuing efforts to integrate preservice and inservice programs demand this type of training.

Inservice Education

Two trends have particular significance for inservice education. The first is the increasing demand by the teaching profession for greater decisionmaking prerogatives in improving inservice education and professional development programs. This is most evident in the new emphasis being placed on the role of the teachers' union in the governance of teacher centers. However, the profession's responsibility to determine staff development needs of a faculty versus the public's responsibility, through the governing authority, to make that determination is still an issue for debate.

The other trend is the declining turnover rate of teachers in schools today and the resulting stability in the profession. This trend turns attention to the importance of inservice education as a vehicle to provide a flow of new or different teaching ideas and methods into a school. In the past, a constant and large influx of new people into a faculty each year often helped to prevent staff parochialism. The decline in the turnover rate is, of course, the result of a decline in public school enrollment, dwindling resources necessitating larger pupil/teacher ratios, and diminishing job opportunities for teachers in the private sector. While the relative decline in teachers' salary levels and the less-than-adequate working conditions continue to contribute to the turnover rate, the trend toward a more stable, experienced, and career-oriented group remains.

Thus, school faculties are more stable rather than transient; experienced rather than inexperienced; and mature rather than youthful. Such a transition has made it necessary and rewarding to support staff development programs which recognize this shift in tenure, experience, and maturity. This trend, of course, must be coupled with the demand by teachers' unions for a greater voice in designing and conducting inservice programs.

The inservice programs which are being developed tend to be directed toward the immediate classroom concerns of the individual teacher; the individual's personal or professional goals; the regulatory requirements of the licensing agency; and the staff development concerns of the school agency in which the teacher is employed. The programs which seem to be of the greatest concern and debate focus on the immediate classroom needs of the teacher and center on the needs

of an entire school staff. The issues are concerned with the design and evaluation of those activities as well as cost, governance, substance, and scheduling.

Greater interest and activity in inservice education have been generated over the last 5 years than in the past as demonstrated by the publication of more literature, more involvement by State agencies, and the convening of more conferences and meetings. However, there has been little significant research and evaluation, little money allocated by local agencies, and few programs which are not short-term activities addressed to the specific needs of the individual practitioner. Few programs address the needs of an entire faculty. The question as to whether inservice education is an important and integral part of the teacher's role within the classroom or is merely an adjunct to the tasks associated with that role has not been resolved. Is staff development an integral part of professional practice? This issue remains an important one for the teachers as well as for their administrators and governing boards.

Opportunities for formal professional work -- either for personal growth or to meet statutory or regulatory requirements -- are still the most utilized forms of professional development and are most frequently available through and governed by universities. That is, the academic and professional bases for development are found in the formal courses for credit and in the requirement for an advanced degree offered by a university. In many instances these courses may also satisfy the requirement leading to the acquisition or maintenance of the certificate or license to teach.

7. EDUCATIONAL RESEARCH

The Federal Government continues to provide the greatest portion of funds for educational research and development in the United States. The major agency for this is the Department of Education. Creation of the first national-level Department of Education in 1980 gave rise to some changes in the organization and structure of Federal educational research support activities. The Department of Education Organization Act states that one of the primary purposes of the new Department of Education is "to promote improvements in the quality and usefulness of education through federally supported research, evaluation, and sharing of information." To this end, the Congress created the Office of Educational Research and Improvement (OERI). The Assistant Secretary for Educational Research and Improvement supervises educational research and statistical activities and the dissemination of research-based information for policymakers, teachers, school administrators, and other users.

The operations of OERI are guided by five major priorities that shape the programmatic activities of the office.

(1) Improve the quality of instruction and learning of basic skills, including skills required for coping with a changing and more complex economy and society;

(2) Improve the quality of instruction and learning related to science and mathematics, including the public's understanding of technical issues;

(3) Demonstrate ways of making better use of alternative educational delivery systems and more effective use of available technologies and telecommunications facilities;

(4) Encourage and provide incentives for schools and colleges to implement locally directed institutional changes -- reforms which meet the needs of changing student enrollments; and

(5) Improve the quality of instruction and learning in intercultural affairs through linguistic, humanistic, and multicultural studies.

Within OERI the National Institute of Education (NIE) is the principal agency supporting and conducting educational research. The Fund for the Improvement of Postsecondary Education, and offices formerly in the Office of Education concerned with bilingual education, education for the handicapped, vocational education, and international education, also fund research activities.

NATIONAL INSTITUTE OF EDUCATION

The National Institute of Education (NIE) was established by the Congress in 1972. Its purpose is to advance the frontiers of knowledge about the process of teaching and learning and about all aspects of the educational system.

The legislation creating NIE directed the Institute's attention to the following national needs:

- o improving student achievement in the basic educational skills, including reading and mathematics;
- o overcoming problems of finance, productivity, and management in educational institutions;
- o improving the ability of schools to meet their responsibilities to provide equal educational opportunities for students of limited English-speaking ability, women, and students who are socially, economically, or educationally disadvantaged;
- o preparing youth and adults for entering and progressing in careers;
- o overcoming the special problems of nontraditional students, including the older student (with special consideration for students over age 45) and the part-time student;
- o encouraging the study of languages and cultures and addressing both national and international education concerns; and
- o improving dissemination of the results of, and knowledge gained from, educational research and development, including assistance to educational agencies and institutions in the application of such results and knowledge.

The Institute is also directed to give attention to the needs of early adolescents and the schools which serve them.

NIE has organized its work around three broad areas: Teaching and Learning (T&L), Educational Policy and Organization (EPO), and Dissemination and Improvement of Practice (DIP).

Teaching and Learning. -- The T&L program supports research on literacy, the nature of good teaching, how children and adults learn, how to measure what is learned, and how to improve the substance of what is taught. The program is concerned with education at all levels -- preschool through adulthood -- in both formal and informal settings.

Within this program, the Learning and Development unit investigates the development of learning and thinking skills and the effects of social processes on learning. The Reading and Language unit focuses on the development of language and literacy and how they are affected by cultural, technical, and social factors. The Teaching and Instruction unit examines the art of teaching -- teacher preparation, the teaching environment, and new approaches to instruction. The Education in the Home, Community, and at Work unit is concerned with out-of-school learning and the relationship among educational experiences in different settings. The Testing, Assessment, and Evaluation unit supports projects concerned with assessing, describing, and analyzing student achievement in instructional processes, learning environments, and promising educational practices. It seeks to provide information about the effectiveness of these projects and the factors that contribute to their outcomes.

Educational Policy and Organization. -- The EPO program supports research on issues of education law, finance, organization, management, and government as these issues arise in the context of policy and operations.

Within the program, the Law and Public Management unit is concerned with research to improve the organization and administration of the intergovernmental system and to examine high-priority policy issues in education. The Educational Finance unit focuses on issues related to the production, allocation, and expenditure of education resources and on how school financing is affected by economic and demographic trends. The Educational Organizations and Local Communities unit examines the governance, organization, and management of schools, school systems, and institutions of higher education; the relationship between these institutions and their community; and how they have integrated educational and social services. Of particular interest are institutions serving the urban and rural poor.

Dissemination and Improvement of Practice. -- The DIP program seeks to ensure that the results of educational research and development are made available in usable form to those who need them. To that end, the program supports research and regional dissemination activities designed to increase the effective use of research and development results in improving educational practice.

The Information Resources unit supports national and State information services and pilot demonstrations of new communications technology. The Regional Program unit supports cooperative efforts among State departments of education, school districts, universities, regional laboratories, and other organizations to provide information and technical assistance for school improvement. The Research and Educational Practice unit seeks to identify successful ways of communicating and using knowledge to improve education. The Minorities and Women's Program supports projects that increase the participation of minority group members and women in educational research.

How NIE Functions

The Institute's principal responsibility is to support quality research on educational issues and to disseminate research. Studies into the nature of human learning, the characteristics of effective schools, and the assessment of achievement are among a broad range of subjects covered by NIE. More than 90 percent of NIE's funds support the research efforts of individuals and institutions throughout the Nation through more than 500 contracts and grants, varying from a few thousand dollars to several million. The Institute is aided in its research through its support of the Institute for Research on Teaching, the Center for the Study of Reading, and the National Center for Research on Bilingual Education.

Nine Research and Development Centers, located at universities, focus on evaluation and teacher education, educational finance and governance, the social organization of schools, and reading comprehension, and bring together scholars from different disciplines for comprehensive programs of research. NIE also funds the National Assessment of Educational Progress which monitors the language, mathematical, and writing skills of young Americans and periodically publishes updates on the status of basic learning in the Nation's schools.

Through dissemination, NIE makes accessible to educators and to the public the information generated through its research as well as that of other scholars and practitioners. The Institute accomplishes this through many avenues of communication. For example:

- The Educational Resources Information Center (ERIC) has some 200,000 research documents available on microfiche, with 10 million users annually — libraries, schools of education, individuals — in America and in other countries. Sixteen ERIC clearinghouses, each for a specific area (i.e., Handicapped and Gifted Children, Rural Education and Small Schools, Urban Education), screen, abstract, catalog, and index research information and publish syntheses and annotated bibliographies.

- Direct assistance to the schools is provided in part by eight Regional Educational Laboratories. These laboratories, with NIE support, also provide information to and technically assist State and local education agencies on problems of great importance to the regions they serve.

- The 13-part television series called "Freestyle" is transmitted nationwide to homes and schools and is designed to educate 9- to 12-year-olds on sex roles, careers, lifestyles, handicaps, and ethnic backgrounds. A national public radio broadcast series, "Options in Education," is devoted to the independent discussion of education issues.

- Books and pamphlets -- such as Plain Talk About School Finance; Research Within Reach; A Research-Guided Response to Concerns of Reading Educators; and Declining Enrollments: The Challenge of the Coming Decade -- make research available to multiple audiences.

Public Information Role

The Institute responds to urgent public needs with congressionally mandated studies that inform educational policymakers or determine the nature and extent of a critical social or educational problem:

- The Compensatory Education Study, completed in 1978, examined the administration and effects of Title I programs that provided supplemental funds to State and local school districts to ensure equal opportunity for all children. The Safe School Study is a basic reference for those seeking to understand the problems of violence and vandalism in schools.

- Other congressionally mandated studies examine the quality and effectiveness of vocational education programs as well as consumer and homemaking education programs. The School Finance Project, a mandated Department study housed at NIE, is examining the Federal role in financing elementary and secondary education, both public and private, over the next decade. The results in each case are expected to inform the U.S. Congress about national education policy.

NIE also provides the public with reliable, easily understood information on a range of educational issues. The Institute accomplishes this through conferences and public forums. For example:

- The 1978 National Conference on Achievement Testing and Basic Skills was the first national forum for the discussion of new issues in testing. The Conference not only brought educators up-to-date, but also gave new emphasis to research and technical assistance that would render tests more useful to teachers and more understandable to parents and other citizens.

- A major project in progress will clarify arguments about Minimum Competency Testing, a program that has already been adopted by 38 States and local school districts in response to citizens' demands for assurances that students coming out of school will have mastered basic skills. NIE sponsored a "Clarification Hearing" where both sides of this controversial issue were presented. Videotapes will be made available to the Nation's legislators and citizens who can profit from having access to the best information and experience upon which to base their decisions. The "Hearings" are scheduled

to appear on public television before the end of 1981. NIE will assess how well this approach serves the important public analysis function, and may use it in the future to explore other controversial, high interest issues such as bilingual education.

As it looks toward the future, NIE is beginning to devote a great deal of attention to the use of electronic technology in the learning process. The Institute expects to participate in developing the means by which this technology can be used for educational purposes.

BILINGUAL EDUCATION

The Bilingual Education program, authorized under Title VII of the Elementary and Secondary Education Act, is administered by the Office of Bilingual Education and Minority Languages Affairs (OBEMLA). Its purpose is to help school districts develop or strengthen their capacity to provide equal educational opportunities for children with limited English-language proficiency. OBEMLA provides assistance for a variety of activities: developing programs of bilingual education at the elementary and secondary levels; training teachers, administrators, and other bilingual educaton personnel; developing curriculum materials; and promoting technical assistance centers and operating the National Clearinghouse for Bilingual Education.

Effective coordination of federally funded research in bilingual education began in 1978. A Research Coordinating Committee for Bilingual Education was established to review, coordinate, and direct the bilingual education research activities of the new Department (other than those assigned to the National Institute of Education). The agencies represented on the Committee include OBEMLA, the National Institute of Education, the Office of Program Evaluation, the Office of Planning and Budget, and the National Center for Education Statistics.

Approximately 30 ongoing studies are being monitored by the various agencies. They fall into three categories; e.g., assessment of national needs for bilingual education; improvement of the effectiveness of services to students; and improvement in Title VII program management and operation.

One study is designed to determine the extent of bilingual education services available to children of limited English-language proficiency; others are intended to determine criteria for the identification of such children, and to determine when children may receive instruction in English in most subjects. Another is to investigate teacher-training programs, while another study has been launched to develop evaluation and data gathering models for the basic skills programs. The research further includes studies to develop instructional patterns for bilingual education and to investigate

parental involvement in bilingual education programs. Together the studies are designed to investigate the dynamics of bilingual education by focusing on the community, school, classroom, teacher, and student levels. All are designed to yield an exhaustive picture of bilingual education practices and outcomes, and to provide information that will be applicable to most teaching and learning situations.

POSTSECONDARY EDUCATION

Foreign Language and International Education

Under the research authority (Section 605) of Title VI of the Higher Education Act of 1965, as amended, which replaced, in 1980, the former Title VI of the National Defense Education Act of 1958, the Department of Education supports studies, surveys, and the preparation of specialized instructional materials to improve and strengthen training in modern foreign languages and area studies, particularly with regard to the world outside Western Europe.

Projects funded in recent years include: the biennial surveys of foreign language enrollments in the secondary schools, colleges, and universities; a survey of the state-of-the-art of Chinese studies in American educational institutions; comprehensive bibliographies of audiovisual materials for African studies on all educational levels; a study of the effect of foreign language study in high school on the students' verbal ability; research and workshops on foreign language proficiency testing, including the development of a common metrics for language proficiency; a 3-year curriculum for Modern Standard Hindi; a guide to the study of the non-Russian peoples of the USSR; and scholars' guides to resources in the Washington, D.C., area for South Asia and Southeast Asia studies. Specialized instructional materials were developed for teaching a variety of non-Western languages including Modern Standard and colloquial Egyptian Arabic, Armenian, Chinese, Czech, Indonesian, Kanuri, Malayalam, Marathi, Persian, Somali and Turkish.

Continued attention to the intercultural dimensions of foreign language and area studies led to the development of a Colombia-American Communication Lexicon and a Handbook on Nonverbal Communication in Brazil, designed for teachers of Portuguese.

Fund for the Improvement of Postsecondary Education

During the past 2 years, the Federal Government has continued its interest in increasing access to higher education for minority and disadvantaged students. This goal is accomplished largely through direct grants and loans to qualifying students. The Fund for the Improvement of Postsecondary Education, a grant program within the Department of Education with a budget of $13.5 million, represents one type of Federal strategy to enhance the quality of education programs

and encourage innovative responses to the learning needs of an increasingly diverse group of postsecondary students. The Fund's principal approach to improvement of postsecondary education policy and practices is to attract and fund projects designed and carried out by educational practitioners which show promise of achieving "learner centered" change locally, and attracting a broad audience as well. The Fund's current priorities remain committed to increasing the access and retention of "new" students in postsecondary education, maintaining diversity, and stimulating thought and action in regard to new pedagogies and configurations of skills and knowledge.

Quality Programs for All Postsecondary Learners. -- Most institutions are enrolling more minority students, unemployed youth, elderly persons, women, and part-time students each year. Although postsecondary education has moved beyond the point of simply opening the door, the full participation of all enrolled students has not yet been realized. Early Fund projects supported institutions to "add on" special services (counseling, basic skills, precollege courses). Today, too many of these programs remain at the periphery of traditional institutions. A current Fund priority is to support assessment of the quality of these programs and their integration into the established curriculum and operating budget.

Full-Time Worker As Learner. -- In the past few years, the Fund has increased its support of programs for full-time workers who previously could not fulfill their educational aspirations. While these projects frequently require complex agreements between unions, employers, and postsecondary institutions, their results are promising. The workplace itself has been used as the setting for effective educational counseling and information. Unions have sponsored instructional programs that incorporate the perspective of the workers, and some institutions have met the needs of workers through weekend colleges and credit for work-related learning. An interesting new grant to the Industrial Cooperative Association develops a program to train workers to manage their co-ops more effectively.

New Modes and Content for Teaching and Learning. -- The Fund currently supports various projects which explicitly give the learner a larger role in designing the educational experience and that he or she build the capacity to act, not solely to know. Promising projects have used apprenticeships and internships to ground theory in practice, and to provide academic credit and information about educational resources to the many adults who pursue individual learning projects independent of institutions. The Fund has also sought projects which use interactive technologies, thus suggesting to the field that the user of electronic media need not be passive and isolated. A new project at Brigham Young University, for example, will permit students to respond in a foreign language to a situation viewed on a videoscreen.

A second Fund priority has been to stimulate the development and refinement of interdisciplinary studies such as black studies, women studies, and environmental studies. Beyond curriculum enrichment, these projects often affect the environment for learning by introducing the perspective of those out of the mainstream, encouraging experimental pedagogies, and examining employment and other practices within postsecondary institutions. One current and promising project being carried out by the Organization of American Historians integrates the history of women into the standard freshman survey of American and Western civilizations. Of another order, in a new grant Earlham College of Indiana will create a Senior Year Studies program to help students synthesize their liberal education experience and make the transition from study to work.

New "Research" Priorities. -- The Fund has begun to support projects which emphasize graduate and professional education for women and minorities. While there has been marked progress in increasing the number of minorities and women in undergraduate education, progress at the graduate and professional training levels has been less impressive. In business, law, medicine, engineering, government service, and even education, women and minorities still face some discriminatory practices. Blacks constitute only 3.2 percent of all lawyers and judges; there are fewer than 190 Native American physicians; Hispanics make up only 2.3 percent of engineers, and in postsecondary education the number of women faculty actually declined between 1974 and 1977. The Fund hopes to attract proposals which demonstrate that colleges and universities can make meaningful commitments to prepare women and minorities for academic and professional employment. Strategies might include long-term educational projects starting as early as junior high school, curricular changes within graduate institutions, attempts to reform admissions procedures, and support services.

Resources and Incentives for Postsecondary Improvement. -- Economic constraint of the last several years has increased pressure on the postsecondary enterprise itself. Against a backdrop of tightened budgets and increasing rigidity, the Fund seeks to strengthen those factors which enable and reward improved learning. Therefore, the Fund considers the external context of education -- licensing, accreditation, State funding formulas, and the like -- to assist such regulatory functions to be more responsive to institutional needs. The Fund seeks as well to improve the climate within institutions, especially in regard to faculty morale. Specific projects might focus on tenure, unionization, career mobility, and faculty work satisfaction. Finally, the Fund seeks to improve the management of higher education, especially in ways that affect student learning. Such projects might reform the administration of financial aid, increase the number of course offerings through consortial arrangements, or make more cost-effective use of facilities.

SPECIAL EDUCATION

Research relating to the education of handicapped children can be traced to a variety of sources. Historically, independent (unfunded), individual investigator research accounted for the greatest contribution to knowledge related to the education of handicapped children. Research and development activities of a scope beyond the resources of individual researchers and institutions have been supported by State and local education funds, a number of Federal support programs, and a wide variety of foundations and professional organizations. Support from the Department of Education and its predecessor, the Office of Education, has been a significant influence in the field of special education research in recent years.

These support activities are directed at developing new knowledge, methods, and materials which will facilitate the broader efforts of the Department and the Nation's schools in fulfilling their commitment to the handicapped.

The basic objectives of this support are to:

(1) Identify, research, and demonstrate solutions to problems that are related to the education of handicapped children;

(2) Develop and disseminate innovative support systems and techniques to improve the performance of handicapped children and/or teachers and other practitioners serving the handicapped; and

(3) Create mechanisms that will produce the broadest possible diffusion, utilization, and implementation of the products of research and development.

The passage of The Education for All Handicapped Act (Public Law 94-142) in 1975 expanded the research and development needs of the professional community. The Department's Office of Special Education was strongly committed to successful implementation of P.L. 94-142, and to the identification and resolution of educational problems which arose within State and local education agencies during the implementation of the Act.

Of 120 research projects ongoing as of October 1, 1980, 42 dealt with issues specifically related to P.L. 94-142; 17 with Least Restrictive Environment; 11 with related services; 5 with parent involvement; 3 with discriminatory assessment; 2 with Individual Education Plans; and 5 with P.L. 94-142 in general. An additional 21 projects dealt with education of severely and profoundly handicapped children, an area which was given considerable impetus by P.L. 94-142.

Recent products of particular relevance include: management information systems for State and local education agencies, several

reports of the effects of teacher and peer attitudes on less restrictive placements, and a general report on State-level implementation problems and progress.

VOCATIONAL AND ADULT EDUCATION

When the Congress passed the Education Amendments of 1976 and modified the vocational education research and development program, it mandated the establishment of "Programs of National Significance." The Programs of National Significance have three components -- the National Center for Research in Vocational Education, the Curriculum Coordination Center, and discretionary projects. The programs employ a variety of strategies -- including demonstrations, development, and dissemination -- to help ensure that quality practices are identified, developed, and applied throughout the United States.

Following the passage of the 1976 legislation, a National Center for Research in Vocational Education was established in 1978 at Ohio State University with funds from the Office of Education. Its goals are to:

1. conduct applied research and development activities;
2. provide leadership development activities for State and local leaders;
3. disseminate the results of vocational education research and development;
4. maintain a clearinghouse on research and development projects supported by the States and the U.S. Department of Education;
5. generate national planning and policy development information; and
6. provide technical assistance to State, local, and other public agencies in developing methods for evaluating vocational education programs.

Six regional Curriculum Coordination Centers established under the 1976 amendments work in interstate dissemination of curriculum and instructional materials among the States within their geographic areas. These Centers have formed a National Curriculum Coordination Network to facilitate interstate curriculum dissemination.

The third component of the legislatively mandated "Programs of National Significance" covers discretionary funded projects targeted on problems of national concern. These programs have addressed the problems of the disadvantaged, minorities, and the handicapped through

the following projects: Development of Model Methods of Administration for the Office for Civil Rights Guidelines for Vocational Education; Strategies for Assessing Bilingual Vocational Training Programs; Basic Skill Development Through Vocational Education; Vocational Education Personnel Development in the Pacific Basin; Youth Employment Program for Out-of-School Youth; Effective Mechanisms for Facilitating Coordination of Vocational Education Programs With Youth Employment and Demonstration Projects Act; and Bilingual Vocational Education Instructor Competencies.

The Programs of National Significance also addressed sex equity through the following projects: Credentialing Women's Life Experiences; Project Access; Development of an Outreach Program To Attract Women into Male-Intensive Vocational Education Programs; Identification and Development of Procedures for Displaced Homemakers; and Development of a Support Service System for Sex Equity Services in Vocational Education.

One project with national potential is the Development of Competency Measures for Vocational Education which is developing, validating, and disseminating competency tests for use in assessing student competencies, in improving vocational instructional programs, and in assisting employers to determine the competencies of prospective employees.

In addition, instructional modules are being developed to infuse Energy Use and Conservation Materials, Health and Safety Materials, and Entreprenueral Skills into all of the seven vocational instruction areas. Dental and medical paraprofessional curriculums developed by the military are also being adapted for vocational education use.

The methods, practices, strategies, and products developed by these projects are specifically designed to improve the quality of instruction and administration of vocational education so that students are better prepared when entering the job market or proceeding to the next educational level required before job entry. Each project has a dissemination plan which attempts to assure that vocational educators throughout the country are kept informed of the progress and the outcomes of the project.

The Federal Government works closely with each of the 57 States and Territories to improve vocational education programs. At the State level, the State Research Coordinating Unit (RCU) administers program improvement activities. In fiscal year 1980 Federal funds were used for approximately 800 research, exemplary, and curriculum development projects. This nationally integrated system provides the opportunity for States and Territories to work with the Federal Government to maintain and improve the quality of their vocational education programs.

Part II:

Interaction Between Education and Work

INTRODUCTION

The link between education and the world of work has been a special concern of the education and business communities in the United States for many years. Traditionally, educational institutions have been trying to resolve how they can best prepare youth and adults for entering into a rapidly changing work world. The relation of success in the job market to educational attainment is well established. Young people who have dropped out of high school, along with high school graduates who have failed to master the basic skills of reading and arithmetic, have the most difficult time entering and staying in the job market.

In recent years, rising unemployment, particularly among youth (ages 16-21), has aroused increasing concern. This along with other related social and economic factors -- i.e., increased poverty, higher welfare roles, increased crime, decreased productivity, and the like -- has focused the attention of community leaders and businessmen, as well as that of educators, on the need for close cooperation between education and the world of work. Consequently, in addition to changes to improve school programs, these groups are cooperating to improve collaboration between educational institutions and business and industry.

This report focuses on actions taken by the United States to strengthen and develop programs that will link education and work, offer youth career planning alernatives, and increase employment opportunities. It gives an overview of the role of education, especially vocational education, in helping both young people and adults discover and develop their full employment potential. Also included are a historical summary, a discussion of the organization and structure of vocational education, and current statistics. The report concentrates on the period 1978 through 1980.

NATIONAL COMMITMENT TO EDUCATION AND WORK

Since the passage of the Smith-Hughes Act in 1917, the U.S. Federal Government has played a significant role in helping youth and adults make the transition from school to paid employment. The Federal role expanded rapidly in the early 1960's when the U.S. Congress realized that without direct and substantial assistance many youth and adults would probably spend months or even years looking unsuccessfully for suitable, well-paying jobs.

Later, the need to alleviate poverty and the hardships of severe unemployment prompted the Congress to pass several laws to promote interaction between education and work: e.g., the Area Redevelopment Act; the Manpower Development and Training Act with its Job Corps, Neighborhood Youth Corps, and institutional job training; and the

Vocational Education Act of 1963, as amended in 1968 and 1976. In the early 1970's, the Congress repealed the Manpower Development and Training Act. In addition to these major Acts, the Congress passed various regional development measures, health personnel training legislation, and other laws which either directly or indirectly supported programs that encouraged people to train for and find jobs in the labor force.

In addition to the schools, the Departments of Education, Commerce, Labor, and Defense all share a concern and interest in programs and laws which enable individuals to make decisions about work, to make a smooth transition to it, and to make satisfactory progress in a career. Outside the public sector, business, industry, and labor are all concerned about the interaction of education and work. Coordination both within the public sector and between the public and private sectors to strengthen the link between education and work will be discussed in a later section of this report.

LEGISLATED CHANGES TO IMPROVE VOCATIONAL EDUCATION

As mentioned earlier, the Smith-Hughes Act of 1917 established the precedent of Federal assistance for secondary education. It extended Federal financial aid to States to support training in public secondary schools in agriculture, home economics, and trades and industries, and to promote the preparation of teachers for these vocational subjects. Each State that accepted Federal support was required to designate a State board for vocational education, submit a plan governing the expenditure of Federal funds, and match the Federal appropriation which was allotted on the basis of the State's population.

The George-Dean Act of 1936 added distributive education and authorized increased appropriations to meet the growing need for vocational education. In 1946, Congress passed the George-Barden Act to assist the Nation's public schools in making a contribution to post World War II recovery.

The Vocational Education Act of 1963 specified that Federal funds could be used for vocational programs for 1) those in secondary schools who are preparing to enter the labor market or become homemakers; 2) youth whose academic, socioeconomic or other handicaps had prevented them from succeeding in regular programs; 3) youth and adults who have completed or left high school and who are preparing to enter the labor market; and 4) those who are unemployed or seeking to upgrade their job skills.

The 1968 Vocational Education Amendments reaffirmed the Nation's commitment to provide quality vocational education to a larger segment of American society. Uses of Federal funds were expanded to include programs and services for the handicapped who cannot succeed in

regular classes and to those with limited-English-language abilities. Vocational guidance and counseling became eligible for support as well as vocational training through arrangements with private institutions. To insure that the needs of special groups were not overlooked, minimum percentage expenditure levels were established for the academic and socially disadvantaged, for the handicapped, and for programs for youth and adults in postsecondary institutions.

The Education Amendments of 1976, Public Law 94-482, became the first major overhaul of the vocational legislation since 1968. This legislation changed funding and administrative arrangements. It included specific help for women, persons with limited English proficiency, Native Americans, the handicapped, and the disadvantaged. It also charged the National Institute of Education (NIE) with undertaking a study of vocational education that would include, among other findings, information on 1) the distribution of vocational education funds; 2) compliance with applicable laws; 3) methods of assessing program quality and effectiveness; and 4) consumer and homemaking education programs.

NATURE, SCOPE, AND STRUCTURE OF VOCATIONAL EDUCATION

Thus, legislation over the years has broadened the scope and improved the quality of vocational education which, through its many programs, services, and activities, trains the Nation's youth for work while emphasizing equal access to training opportunities for males and females, the disadvantaged, the handicapped, and persons with limited-English-language proficiency. Vocational education also retrains and upgrades adult workers to keep them abreast of the changing needs in business and industry, and continues to contribute to achieving national goals of productivity and economic development.

The major goal of vocational education programs is to increase the student's knowledge and skills about a specific job or occupational field. Vocational education offers more than 400 instructional programs at the secondary, postsecondary, or adult levels to increase a person's potential for employment or upgrade a person's skill in a current job. These programs are usually grouped under vocational education's seven traditional occupational headings: agriculture, marketing and distribution, health occupations, occupational home economics, business and office occupations, technical education, and trade and industrial education.

Over the years as the programs are reviewed and evaluated and new problems emerge, the administration and the Congress propose new legislation to improve the structure, administration, and management of vocational education.

Relationship of General and Vocational Education

General and vocational education philosophies have traditionally been separate entities in the United States. This is because of the different image that practitioners of each school have of themselves and each other. General education, in the earlier grades, is the foundation for both vocational and general education in secondary and postsecondary institutions. General education at the secondary level provides the basic skills and academic preparation required for post-secondary study. Vocational education, on the other hand, begins at the secondary level and continues into the 2-year postsecondary level.

Certain programs logically continue from the secondary to the postsecondary level. These include office occupations, distributive education, health occupations, and other nontechnical programs. Technical education, because of the academic foundation required at the secondary level, generally begins with the postsecondary schooling. However, several special purpose high schools and large vocational/technical schools offer technical programs at the secondary level. Generally, a 2-year postsecondary program is required for minimal competencies in any of the physical sciences. A student may choose to terminate his technical education at this point if the post-secondary program permits, and transfer credits to and continue at a 4-year college or university. Thus, a logical progression between the subprofessional and the professional technical occupations exists among institutions which offer technical programs.

Structure of Vocational Education

At the State level, vocational education is under the jurisdiction of a State vocational education board. In many States, the State board of education also serves as the State vocational education board. In other States, the vocational education board and the State board of education have overlapping membership. The State director of vocational education often serves as the State executive officer in charge of administering vocational education programs.

Delivery of vocational programs and services varies at the local levels. In the comprehensive high school, vocational education programs are offered in conjunction with general education. Students spend a portion of each day in shop or laboratory classes, and the remainder of the day in supportive classroom instruction at the same facility. A variant of this is the specialized vocational/technical high school which provides instruction in an occupational area complemented by the related subjects and general education required for a high school diploma. Typically, the student spends half the day in the shops and labs and half in related subjects. These institutions have traditionally been more or less autonomous institutions serving several school districts and offering training in as many as 50 different occupations.

The area vocational center is a centralized service center accommodating students from several feeder schools in a region. The general procedure is to bus students to the center for approximately half a day, return them to their home schools, and then bus another group to the center for the remaining time. These centers generally offer only the occupational skills and theory; the home school is responsible for classroom instruction in all general education and related subjects.

Technical institutes, or technical colleges, are the postsecondary counterpart of specialized high schools where youth and adults who have completed or left high school are prepared for entrance into specific occupations. Activities and programs are also offered for adults who desire to upgrade and update their occupational skills. The community college is the postsecondary counterpart of the comprehensive high school. Vocational-technical and academic programs are offered and students can earn associate degrees. Other more specific programs are also frequently available at community colleges to meet short-term skill development, vocational, and remedial needs of specific segments of the population.

Current Statistics

Enrollment in vocational education at all levels totaled a record 17,033,620 in fiscal year 1979 (the most recent data available through the Vocational Education Data System (VEDS) of the National Center for Education Statistics). Approximately 51 percent of these students were female.

Total expenditures have also increased from $2.7 billion in 1972 to $6.5 billion in 1979. Federal expenditures increased from $466 million in 1972 to $565 million in 1979.

Although placement rates for fiscal year 1979 are not yet available, the 1978 rates are typical for vocational education's performance. Of all those persons available for placement in 1978, 66.4 percent were employed full-time in the field for which they had been trained or in a closely related field. Another 25.4 percent were employed in a field not related to their training, or were employed part time. In other words, a full 91.8 percent of those available for placement, obtained employment in 1978.

Interaction of Education and Work

Many problems related to education and work are probably beyond the capacity of education to solve. Unemployment and low wages are two such problems. When economic conditions are poor, many people find themselves compelled to accept work below their competency or can find no work. Other work problems basically outside education's capability to solve are related to the structure of the labor market; to policies and practices regarding recruiting, selection, and promotion;

to the nature of the workplace itself; and to technological changes affecting the demand for certain skills.

However, the consensus is that education can help people in the following ways:

- increase people's awareness of the role of work in their lives and in the economy;
- inform people about the nature and requirements of different occupations and the education and experience needed to enter and progress in them;
- overcome self-imposed limitations on career choice;
- improve students' abilities to make good career decisions and to develop career plans that will help them reach their occupational goals;
- teach the actual skills, abilities, and attitudes needed to enter and progress in careers;
- acquire certification in the skills and abilities obtained through formal and nonformal learning experiences;
- provide formal education as needed throughout one's lifetime; and
- provide needed information for lifelong career development.

Education in general, and vocational education in particular, can do a better job of helping people pursue their occupational choices. What follows is a discussion of how interaction and coordination among a variety of programs and experiences contribute to job success.

U.S. EXPERIENCE IN LINKING EDUCATION AND WORK

In vocational education it has been axiomatic that blending practical experience with formal instruction enhances the educational significance of both. This blending can take various forms. Within vocational education the three major types of structures for coordinating education and work experience are: Work-Study programs, Work-Experience Education, and Cooperative Vocational Education Programs.

Another is the Experience-Based Career Education Program.

Work-Study Programs

Vocational work-study programs assist full-time vocational

education students, ages 15 to 21, who need earnings from employment either to begin or to continue their vocational education. The Vocational Education Act specifies that students must work for a local education agency or some other public nonprofit agency or institution.

Work study addresses the national problem of youth unemployment. Employment gives this targeted group an initial job experience which enables the student to earn income and learn basic work habits and attitudes. In many cases, work study helps disadvantaged youth develop a sound concept of work and an understanding of the reason for work. It also helps needy vocational students to remain in school and achieve marketable skills.

Work-Experience and Career Exploration Program

The Work-Experience and Career Exploration Program (WECEP), authorized by the Fair Labor Standards Act, is a coordinated effort involving the U.S. Department of Education's Office of Vocational and Adult Education, the U.S. Department of Labor's Wage and Hour Division, and the State departments of education. The program offers a carefully planned work experience for 14- and 15-year-old youth who are considered potential dropouts. It is designed to encourage the young people to become productive, contributing members of their communities. Federal vocational education funds and State and local funds have been used to develop and finance this program. In some States the program is coordinated with cooperative vocational education.

WECEP started in 1969 as a 3-year experimental program in 13 States. It now has programs in 24 States with over 40,000 participating students. Several studies to evaluate the effectiveness of WECEP revealed its positive impact on students' scholastic performance, attendance, and behavior.

Cooperative Vocational Education Programs

Cooperative vocational education programs are identified by the following elements: a written cooperative arrangement exists between the school and employers; students receive classroom instruction (including academic instruction) related to the job; planned and school-supervised periods of work alternate; and students are employed and compensated in conformity with Federal, State, and local laws.

Cooperative education is designed to prepare students for employment. It is a school-initiated and school-supervised program. Instruction at the secondary, postsecondary, and adult levels cuts across all occupations. The key elements are developing competencies and establishing bridges between school and employment for students, including the handicapped, women, minorities, the disadvantaged, and the incarcerated. The consistent quality of these programs comes from using the work environment in conjunction with classroom instruction to achieve educational goals.

During fiscal year 1979, there were 536,961 students enrolled in cooperative vocational education. The estimated earnings for these students in the 57 States and Territories were $1,046,000,028. This figure is based on a 3-hour work day at the minimum wage of $2.90 for the 4 months in 1979, and $3.10 for the 6 months in 1980. Expenditures for cooperative vocational education totaled $115,001,967 in fiscal year 1979. Federal expenditures were $8,255,763 and State and local expenditures were $106,756,204. Thus, cooperative vocational education students earned 9 times more than the cost of the entire program.

States reported that, in addition to the earnings that students receive, cooperative vocational education programs offer students many other benefits: i.e., employment experience, job skills, expanded knowledge, and constructive attitudes about work. School administrators find that cooperative programs reduce the need for expensive, specialized equipment and laboratories since students use the employer's equipment. The school is able to ensure quality instruction through immediate application of skills in realistic settings. Cooperative education also enables schools to teach more students in a given facility by carefully scheduling alternate periods of work and school. Federal, State, and local governments gain the taxes withheld from the students' earnings, and many States also collect sales taxes when students spend their earnings. Employers find cooperative vocational education programs attractive because they respond quickly to changes in the economy, make possible better trained employees, provide present and future sources of employees, and keep some qualified young people in the community.

Employers of cooperative vocational education students also receive tax credits. The Targeted Jobs Tax Credit (TJTC) program was established by the Revenue Act of 1978. The Departments of Education and Labor and the Internal Revenue Service have coordinated the TJTC Program.

Experience-Based Career Education Program

Vocational education has supported exemplary experience-based career education (EBCE) projects in each of the 50 States and outlying areas. These projects have provided integrated academic and experience-based activities in business and industry for students, making maximum use of community resources.

This Federal initiative brings students of the public education system directly into the marketplace, and, in turn, brings the expertise of private firms to the schools by infusing work concepts and habits into the regular school curriculums. Placed in a variety of community sites, students are engaged in planning and learning activities that blend growth in academic, career development, and life and survival skills. As a result, school experience becomes more related to job needs of the students.

The academic credit granted to the student for experience gained in the workplace requires extensive cooperation among teachers, guidance counselors, and supervisors at the work site. EBCE programs tend to be offered primarily to students in the last two grades of secondary school, the 11th and 12th. Students involved in prototype EBCE programs spend approximately 8 to 30 hours weekly at the school conferring individually with the coordinator, attending workshops with EBCE enrollees, and using facilities such as the library. The remainder of the week is spent in the community completing projects and interacting with adults. The emphasis here is on academic and personal productivity.

Participating businesses and industries become more aware of the actual skills and knowledge that potential employees need. In addition, EBCE programs have developed a better understanding of the learning processes the schools can make available to students.

EBCE programs are now widespread throughout the United States. In 1976, a total of 46 EBCE projects were funded by the U.S. Office of Education (now the Department of Education). Nine new projects in 1977 brought the total to 55. Today more than 200,000 persons are educated and trained through this new method which has also involved 22,000 employees of business and industrial firms.

States are now able to fund EBCE programs, and there is evidence that EBCE objectives to improve students attitudes toward work, enhance career awareness, and acquire basic academic skills are being met in a unique way.

PUBLIC/PRIVATE INVOLVEMENT

Several mechanisms are now aimed at increasing collaboration between the public sector and the private sector to strengthen the link between education and work. These include, for example, incentives in the Federal tax code such as the Targeted Jobs Tax Credit, legislative mandates for advisory councils, Federal incentives for new or expanding industries -- especially those in depressed areas -- and vocational student organizations which help students develop relationships with representatives of business, industry, and government.

Advisory Councils

Advisory councils for education and training programs have been established throughout the United States and serve a number of purposes. Council members are usually drawn from education, industry, and labor, and are the key contacts between the schools and business, industry, and labor.

o Vocational Education Advisory Councils. -- A National Advisory Council on Vocational Education is made up of members appointed by the President to advise him, the Congress, and the Secretary of Education on vocational education programs.

States are required under Federal legislation to establish a State Advisory Council on Vocational Education to increase citizen participation in the vocational education planning and the decision-making process. The State council includes representatives of business, labor, industry, the general public, minority interests, students, women, and educational institutions and professionals. Local advisory councils, authorized by the Education Amendments of 1976, assist local education agencies and other eligible recipients in planning and administering local programs. Such councils are comprised of representatives of business, industry, labor, and the general public.

o Work Education Councils. -- Work education councils, fostered by the U.S. Department of Labor, exist in more than 50 cities and communities in the United States. They assist students in the transition from school to work, identify and provide work-experience sites, assist in job development programs, and are often a source for creating new job opportunities in their respective communities.

o Industry-Education-Labor (IEL) Councils. -- IEL Councils were designed to provide a system of meaningful collaboration among industry, business, labor, and education. Such councils currently exist in over 40 cities and communities throughout the United States.

o Private Industry Councils (PIC's). -- Each Comprehensive Education and Training Act's prime sponsor[1] is required to establish a Private Industry Council (PIC). The main function of the Council is to increase the involvement of the business community in training programs and to help expand private sector employment opportunities for economically disadvantaged persons. The PIC's membership includes small businesses, minority business enterprises, and labor organizations.

Student Organizations

Nine national vocational student organizations play a vital role in preparing students for work through fostering the development of both vocational and career competencies and leadership skills. Interaction between students and the business and industrial communities is extensive. Annually, more than a thousand concerned businesses, industries, organizations, and individuals contribute over

[1]The highest elected official of any political jurisdiction with a population of 100,000 or more (e.g., mayor, governor, or county supervisor).

$1.5 million to these student organizations. The organizations are the: American Industrial Arts Student Association; Distributive Education Clubs of America; Future Business Leaders of America; Future Farmers of America; Future Homemakers of America; Health Occupations Students of America; National Postsecondary Agriculture Student Organization; Office Education Association; and Vocational Industrial Clubs of America. The programs vary, but all are designed to motivate students, supplement the instructional program, encourage leadership development, and incorporate the involvement of business, industry, and the public.

Other Federal Initiatives

The central aim of manpower programs is to train and successfully employ individuals in suitable jobs. The natural linkages between these programs and vocational education programs have increased because legislative amendments established a greater overlap in the goals and target groups served by both programs. Because of this relationship the Congress created new channels and incentives for coordination through the 1976 amendments to the Vocational Education Act, the Youth Employment Demonstration Projects Act (YEDPA) of 1977, and the 1978 amendments to the Comprehensive Employment and Training Act (CETA).

Both CETA and the Vocational Education Act (VEA) specify mandates for coordination at the national level. The Office of Vocational and Adult Education in the U.S. Department of Education and the Office of Youth Programs in the U.S. Department of Labor work together to promote linkages among vocational education, other Federal and State education programs, and CETA programs in order to promote the employment of disadvantaged youth and adults. Coordination at the Federal level is achieved through a joint agreement between the Departments of Labor and Education. As a result, three distinct national initiatives now exist to stimulate coordination between vocational education and those providing employment and training. The initiatives involved the funding of 20 projects to promote cooperation between local education agencies and prime sponsors, to serve special populations, and to provide a summer youth demonstration program. Most of these projects are still in progress.

State-level coordination is required under both CETA and the VEA, where specific channels for interaction are described. Collaboration is encouraged under CETA through the set-asides that either require funds to be spent by vocational education agencies or allow funds to be used for coordination of vocational education and CETA programs.

Section 204 of CETA requires the Secretary of Labor to pass CETA funds through State vocational education boards for needed vocational education services at the local level. Not less than 85 percent of these funds are to be used to provide vocational education and services for participants in programs. The remainder of the funds may be

used to: coordinate CETA programs with existing vocational education programs; coordinate the use of funds available under CETA and the Vocational Education Act to enhance economic growth in the State; develop linkages among vocational education, employment and training programs, and private sector employers; provide technical assistance to vocational education institutions and local education agencies in making cooperative arrangements with prime sponsors; and provide information, curriculum materials, and technical assistance in curriculum development and staff development to prime sponsors.

The most common result of coordination is the exchange of representatives on different councils and committees. This has led to improved planning and to a more economical and nonduplicative use of resources in implementing both programs. Examples of such exchange of representatives include:

1. appointments of coordinators to function as liaison between vocational education and employment training programs;

2. representatives from the State Employment and Training Council (SETC) on the Vocational Education State Plan Committee;

3. committees and special meetings between State vocational education staff and the SETC staff;

4. representatives from SETC on the State Board of the State Occupational Information Coordinating Committee (SOICC).

At the local level, CETA and local education agency agreements under the Youth Employment and Training Program (YETP) required that at least 22 percent of the YETP funds for State and local prime sponsors be spent on programs developed cooperatively between prime sponsors and local education agencies. These funds must be spent on in-school youth. Services are provided by secondary schools, skill centers, community colleges, community-based organizations, vocational/technical centers, and various public and private-sector employers.

OBSTACLES HINDERING IMPLEMENTATION

Several obstacles tend to hinder implementing a comprehensive governmentwide policy on education and work. Some of these problems are not limited to any one domain -- e.g., labor, education, commerce -- but tend to cut across several. Problems specific to a given area also exist, such as coordination between vocational education and CETA. For example:

- Organizational differences exist between the two major Federal and State systems (Labor and Education) involved in the

education and work enterprise. There is no formal or accountable State level administrative function for the Department of Labor's CETA programs. The State education agency is a key element in administering education programs. At the local level, Labor's CETA system is organized by 473 "prime sponsors" which work with over 12,000 local education agencies.

- o No current, accurate, and reliable labor market data exist. This deficiency may be corrected by the establishment and operation of the National Occupational Information Coordinating Committee (NOICC) and counterpart State committees mandated in the 1976 Amendments to the Vocational Education Act. NOICC expects to provide more general career and educational information about the world of work for students, parents, teachers, counselors, and others. These committees are working to make it feasible for States to use common occupational definitions and terms.

- o Laws regarding compulsory school attendance tend to minimize the time and type of experiences available to youth interested in first-hand work experiences.

- o Labor unions tend to oppose programs that could displace full-time, adult workers. Unions also oppose programs in which students provide free labor for the production of goods and services.

- o Teachers and administrators may resist programs that require the development of special curriculums. It is often argued that experiential programs tend to dilute the educational quality and value of degrees and licenses.

Yet, despite the aforementioned impediments, and the traditional separateness of education and the private sector, the coordination of education and work is improving, because economic reality demands the need for coordination between the educational and employment communities.

RELATED ISSUES

Vocational education teachers and the impact of science and technology on education for work are related issues in any discussion of the interaction of education and work.

Vocational Teachers

Vocational teachers at the secondary level are required by most States to have substantial experience in the world of work before assuming a teaching role. This is not necessarily true at the

postsecondary level, although many teachers in community colleges and technical institutions do have considerable industrial experience.

Comprehensive systems of preservice and inservice education for teachers exist in the United States. Preservice training is primarily the responsibility of colleges and universities. Extensive inservice programs in most States are conducted jointly by colleges, State education agencies, and local education agencies.

Many teachers receive work sabbaticals during the summer months. In general, teachers' associations have been quite active as proponents of Federal and State legislation which fosters the interaction of education and work. Most notable is the American Vocational Association (AVA), which includes nearly 50,000 teachers among its members. The AVA has been active both in drafting legislative alternatives, and in advocating new laws or modifying older laws to aid teachers and education.

Science and Technology

Since the 1950's the United States has been deeply concerned about the inadequacies of science education at the elementary and secondary levels. While the current and direct impact of science and technology on education and productive work is unclear, certain technologies are now coming into use which can be expected to have important positive consequences. For example, interactive computer-based instruction is rapidly growing. PLATO, developed by the Department of Education and the National Science Foundation, is a worldwide system with thousands of interactional programs. It is widely used by individuals, colleges and universities, and the Armed Forces to teach a spectrum of programs -- from small engine repair to graduate-level courses in veterinary medicine. To have access to these programs students need only a terminal and a telephone. Instructors may be contacted directly by the student to clarify any aspect of the program content.

Synchronous orbiting satellites are already in place for low-energy communication. However, these satellites require sophisticated ground stations and retransmission networks. The advent of the space shuttle will enable the United States and cooperating nations to place in stationary orbit high-powered communication equipment capable of broadcasting hundreds of programs directed to individual television receivers. All that would be required to operate a TV receiver would be a small wind or water generator (one similar to that in an auto), a small wire mesh parabolic antenna about 3 feet in diameter, and an ordinary TV set with a tuner and preamplifier capable of receiving the expanded number of channels. One complete system could be manufactured and marketed for well under $1,000. Any individual with modest electronic knowledge could easily fabricate such a system around the basic TV set of today.

The social consequences of such instant communication are obvious: A broad spectrum of programs in basic health care, agricultural sciences, and general technology could be as readily available to the least developed communities as programs in high technology and cultural exchange would be to the most advanced.

SUMMARY

The United States has had a rich variety of experiences in addressing the employment preparation needs of youth and adults. It has made constant adjustments in vocational education through legislation. Enrollments have expanded and expenditures at all levels have increased, yet programs have been effected detrimentally by inflation.

Continuous coordination among a variety of agencies and organizations in both the public and private sectors are helping to promote linkages among those offering vocational education and those providing training and employment.

While certain obstacles exist which hinder the implementation of a strong policy of education and work to accomplish the goal of preparing youth and adults for jobs, the traditional separation between education and the private sector is breaking down, and the coordination of education and work is growing.

America is in a time of transition in terms of education and work. Because of the Nation's rich history and progress, it looks to an optimistic future. This future will require rethinking and rededication.

Appendixes

APPENDIX A -- NATIONAL ADVISORY COMMITTEES*

Advisory Committee on Accreditation and Institutional Eligibility

Advisory Council on Dependents' Education

Advisory Council on Developing Institutions

Advisory Council on Education Statistics

Advisory Council on Financial Aid To Students

Advisory Panel on Financing Elementary and Secondary Education

Asbestos Hazards School Safety Task Force

Board of Advisors to the Fund for the Improvement of Postsecondary Education

Commission on the Review of the Federal Impact Aid Program

Community Education Advisory Council

Federal Education Data Acquisition Council

Intergovernmental Advisory Council on Education

National Advisory Committee on Black Higher Education and Black Colleges and Universities

National Advisory Council for Career Education

National Advisory Council on Adult Education

National Advisory Council on Bilingual Education

National Advisory Council on Ethnic Heritage Studies

National Advisory Council on Extension and Continuing Education

National Advisory Council on Indian Education

National Advisory Council on the Education of Disadvantaged Children

National Advisory Council on Vocational Education

National Advisory Council on Women's Educational Programs

National Center for Research in Vocational Education Advisory Council

Panel for the Review of Laboratory and Center Operations

*Active during 1980.

APPENDIX B -- SELECTED REFERENCES: 1979 AND 1980

GOVERNMENT PUBLICATIONS

Council on Environmental Quality and the Department of State. The Global 2000 Report to the President. Washington, DC: U.S. Government Printing Office, 1980.

National Commission for Employment Policy -- Fifth Annual Report to the President and the Congress. Expanding Employment Opportunities for Disadvantaged Youth. Report No. 9. Washington, DC: U.S. Government Printing Office, 1979.

National Science Foundation. National Patterns of Research and Development Resources, Funds, and Manpower in the United States, 1953-1978. Washington, DC: National Science Foundation, 1980.

National Science Foundation and the Department of Education. Science and Engineering Education in the 1980's and Beyond (NSF 80-78). Washington, DC: National Science Foundation, 1980.

National Science Foundation, Office of Program Integration, Directorate for Science Education. What Are the Needs in Precollege Science, Mathematics, and Social Science Education? Washington, DC: U.S. Government Printing Office, 1980.

U.S. Commissioner of Education. Task Force on Global Education. Report With Recommendations. Washington, DC: Office of Education, October 1979.

U.S. Congress. House of Representative Committee on Education and Labor. Subcomittee on Elementary, Secondary and Vocational Education. Foresight Hearings on Future Trends in Elementary and Secondary Education. April 25 and 26, 1979. Washington, DC: U.S. Government Printing Office, 1979.

_____. Needs of Elementary and Secondary Education in the 1980's. January 1980. Washington, DC: U.S. Government Printing Office, 1980.

U.S. Department of Education. Annual Evaluation Report on Programs Administered by the U.S. Office of Education, Fiscal Year 1978. Washington, DC: U.S. Government Printing Office, 1980.

_____. 1980 Annual Report. Washington, DC: U.S. Government Printing Office, 1980.

_____. Catalog of Federal Education Assistance Programs. Washington, DC: U.S. Government Printing Office, 1980.

_____. Educational Programs That Work, A Resource of Exemplary Educational Programs Developed by Local School Districts and Approved by the Joint Dissemination Review Panel. Seventh ed. San Francisco, CA.: Far West Laboratory for Educational Research and Development, fall 1980.

U.S. Department of Education. Office of Educational Research and Improvement, National Center for Education Statistics. The Condition of Education, Statistical Report, 1980 Edition, by Nancy Dearman and Valena White Plisko. Washington, DC: U.S. Government Printing Office, 1980.

_____. Digest of Education Statistics 1980, by W. Vance Grant and Leo J. Eiden. Washington, DC: U.S. Government Printing Office, 1980.

U.S. Department of Health, Education, and Welfare. Office of Education, Bureau of Occupational and Adult Education. Status of Vocational Education in 1978. Washington, DC: U.S. Government Printing Office, 1980.

U.S. Department of Labor, Employment and Training Report of the President. Washington, DC: U.S. Government Printing Office, 1979.

NON-GOVERNMENT PUBLICATIONS

Andersen, Charles J., Comp. 1980 Fact Book for Academic Administrators. Washington, DC: American Council on Education, 1980.
Data drawn from government and private sources are presented in figures and tables that emphasize trends and relationships in American higher education. The volume contains six sections: demographic and economic data; enrollment data; data on institutions; data on faculty and staff; student data; and earned degrees data. Updated annually.

Astin, Alexander W. and Scherrei, Rita A. Maximizing Leadership Effectiveness. Impact of Administrative Style on Faculty and Students. San Francisco, CA: Jossey-Bass, 1980.
The effect of the managerial style of a college's administrative team on student and faculty behaviors is examined, based on a 5-year nationwide study of 49 colleges and universities.

Barth, Roland S. Run School Run. Cambridge, MA: Harvard University Press, 1980.
A former principals draws upon his experiences and gives his approach to solving problems created by the diverse values and needs of society.

Blumberg, Arthur and Greenfield, William. The Effective Principal: Perspectives on School Leadership. Boston, MA: Allyn and Bacon, Inc., 1980.
Based on in-depth interviews, the authors discuss characteristics and leadership traits required of the building principal to be an effective administrator.

Bowen, Howard R. The Costs of Higher Education. San Francisco, CA: Jossey-Bass, 1980.
The first definitive analysis of how much American colleges and universities actually spend to educate their students, and how much they should spend, is provided, based on official data from government sources and from the American Association of University Professors.

Carnegie Council on Policy Studies in Higher Education. A Summary of Reports and Recommendations. San Francisco, CA: Jossey-Bass, 1980.
A report of the work of the Carnegie Council from 1974 to 1980 with summaries of the Council's 15 policy reports and 38 sponsored research and technical reports. Issues include the Federal role in postsecondary education, tuition, affirmative action, the State role, collection bargaining, admissions, and private education.

_____. Three Thousand Futures: The Next Twenty Years for Higher Education. San Francisco, CA: Jossey-Bass, 1980.
Issues of concern to higher education professionals, such as enrollment, tax policy, and institutional competition are reviewed, and courses of action to be taken by institutions, states, and the Federal Government are examined.

Centra, John A. Determining Faculty Effectiveness. Assessing Teaching, Research, and Service for Personnel Decisions and Improvement. San Francisco, CA: Jossey-Bass, 1979.
Assessment of classroom teaching, scholarship and research, public service, and student advising are examined in the research-based guide in determining faculty effectiveness. Emphasis on educational accountability is noted.

Conrad, Clifton F. and Wyer, Jean C. Liberal Education in Transition. AAHE-ERIC/Higher Education Research Report No. 3. Washington, DC: American Association for Higher Education, 1980. (ERIC Document Reproduction Service No. ED 183 124.)
Pressures and competing forces on American liberal education, and how liberal education will meet the demands of students of the 1980's and beyond, are addressed in this review of the literature.

Feather, Fran, ed. Through the 80s: Thinking Globally, Acting Locally, Washington, DC: World Future Society, 1980.
Book includes several essays on education taken from papers submitted by futurists to the First Global Conference on the Future held in Toronto, Canada, July 1980.

Frances, Carol. The Short-Run Economic Outlook for Higher Education. Washington, DC: American Council on Education, 1980.
An examination of the short-run outlook for the economy and its probable effect on colleges and universities is presented; also discussed are recommendations for developing improved economic outlook information for higher education management.

Gappa, Judith M. and Uehling, Barbara S. Women in Academe: Steps to Greater Equality. AAHE-ERIC/Higher Education Research Report, No. 1. Washington, DC: American Association for Higher Education, 1979. (ERIC Document Reproduction Service No. ED 169 873.)
The literature on women in higher education is gathered into a conceptual unit and related to the higher education enterprise. Various causes of inequities are identified and recommendations are developed to increase more equitable treatment of academic women.

Harcleroad, Fred F. Accreditation: History, Process, and Problems. AAHE-ERIC/Higher Education Research Report No. 6. Washington, DC: American Association for Higher Education, 1980. (ERIC Document Reproduction Service No. HE 013 547.)
A historical framework within which the pieces of the accreditation debate have been forged is developed. The connotation of such concepts as "eligibility," "approval," and "accreditation" are explored and recent exemplary cooperative arrangements between States and accrediting associations are cited.

Jedamus, Paul and Peterson, Marvin W., eds. Improving Academic Management: A Handbook of Planning and Institutional Research. San Francisco, CA: Jossey-Bass, 1980.
Attention is directed in this guide to the impact of current changes in the external environment on higher education and the implications of these changes for institutional research and planning. Issues such as political trends, demographic trends, and master plans are discussed.

Kaplan, William A. The Law of Higher Education, 1980. San Francisco, CA: Jossey-Bass, 1980.
Designed to be used with "The Law of Higher Education, 1978," this book serves as a reference to current legal issues, as well as to primary and secondary materials concerning higher education law.

Levine, Arthur. When Dreams and Heroes Died. A Portrait of Today's College Student. San Francisco, CA: Jossey-Bass, 1980.
Information from national surveys of over 95,000 undergraduates during the 1960's and 1970's, a study of institutional policies regarding students at 586 colleges, and interviews with student leaders are gathered in this Carnegie Council-supported study to provide a picture of today's student.

Maddaus, George, Aarasin, Peter, and Kellaghen, Thomas. School Effectiveness: A Reassessment of the Evidence. New York, NY: McGraw-Hill, 1980.
The authors discuss the concepts and issues growing out of the large-scale school effectiveness students (Coleman and Jencks reports) and give insights into the problems associated with the assessment of schooling within the realities of the education environment. Study supported by Carnegie Corporation.

Mayville, William V. Federal Influence on Higher Education Curricula. AAHE-ERIC/Higher Education Research Report No. 1. Washington, DC: American Association for Higher Education, 1980. (ERIC Document Reproduction Service No. ED 187 221.)
Direct and indirect influences of Federal action on the higher education curriculum are described in an effort to better comprehend the process by which educational policy decisions are reached by the Government and what institutions of higher education have to do with this process.

Mortimer, Kenneth P. and Tierney, Michael L. The Three "R's" of the Eighties: Reduction, Reallocation, and Retrenchment. AAHE-ERIC/Higher Education Research Report No. 4. Washington, DC: American Association for Higher Education, 1979. (ERIC Document Reproduction Service No. ED 172 642.)
Alternatives to the prospects of declining enrollments and diminishing resources are dicussed in this literature review. Survival is shown to be dependent upon how institutions react now in planning for reductions in their growth rate and budget base, how they handle internal program reallocation, and how they involve the faculty in developing redistribution and/or reduction schedules.

National Commission on Youth. The Transition of Youth to Adulthood: A Bridge Too Long. Boulder, CO: Westview Press, 1980.
A comprehensive report with recommendations for bridging the transition from youth to adulthood. Stresses importance of creating new environments and new policies for youth. Suggestions made for building new relationships among family, school and private sector, and Government and voluntary agencies.

Patterson, Lewis D. Survival Through Interdependence. AAHE-ERIC/ Higher Education Research Report No. 10. Washington, DC: American Association for Higher Education, 1979. (ERIC Document Reproduction Service No. ED 183 116.)

Various forms of interinstitutional cooperation are reviewed, their purposes examined, and the cost benefits analyzed. Attention is directed toward factors considered in analyzing external relations, benefits besides costs, and the role of cooperation in the future.

A Program for Renewed Partnership. The Report of the Sloan Commission on Government and Higher Education. Cambridge, MA: Ballinger Publishing, 1980. (Overview available from ERIC Document Reproduction Service No. ED 184 497.)

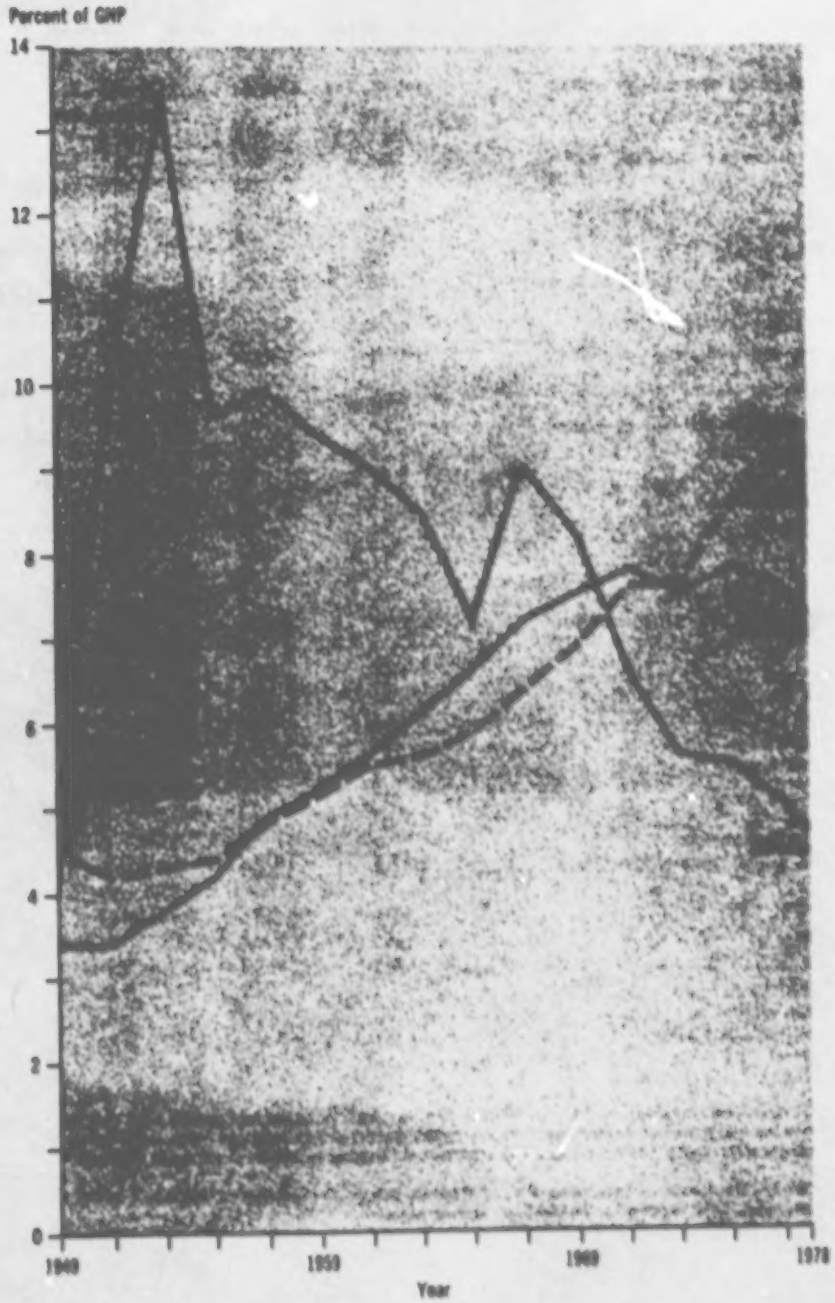
The influence of the Federal Government on postsecondary institutions is reviewed in terms of regulations, funding, research support, etc.

Riesman, David. On Higher Education: The Academic Enterprise in an Era of Rising Student Consumerism. San Francisco, CA: Jossey-Bass, 1980.

The rapid growth of student consumerism in higher education is examined, including increased litigation against colleges by students and expanded Federal efforts to protect student interests by regulating institutions. The consequences on teaching and learning of the escalating competition for student customers is also analyzed.

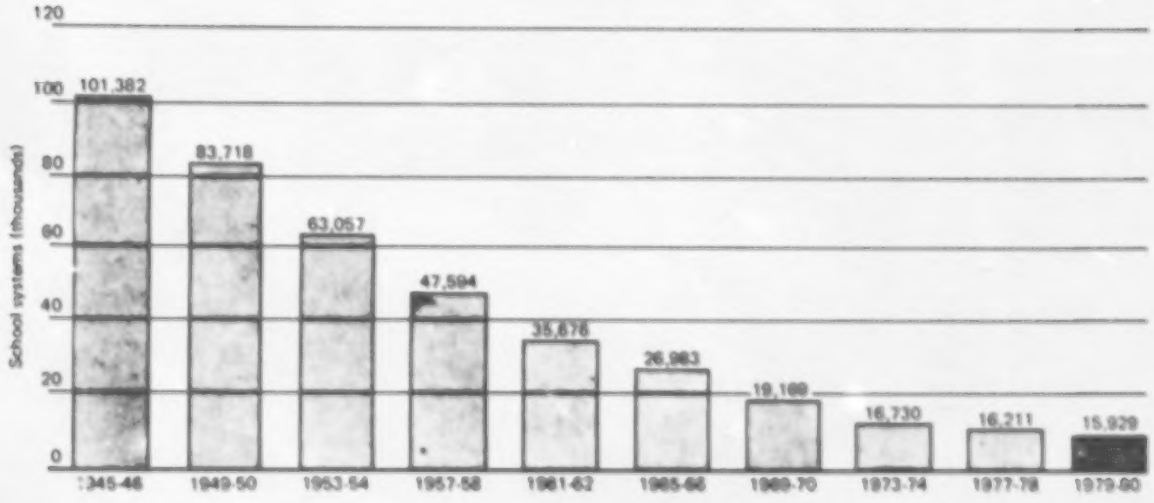
Figures and Tables

Figure 2.--Expenditures for education, health, and defense as a percent of the gross national product: United States, 1949 to 1978



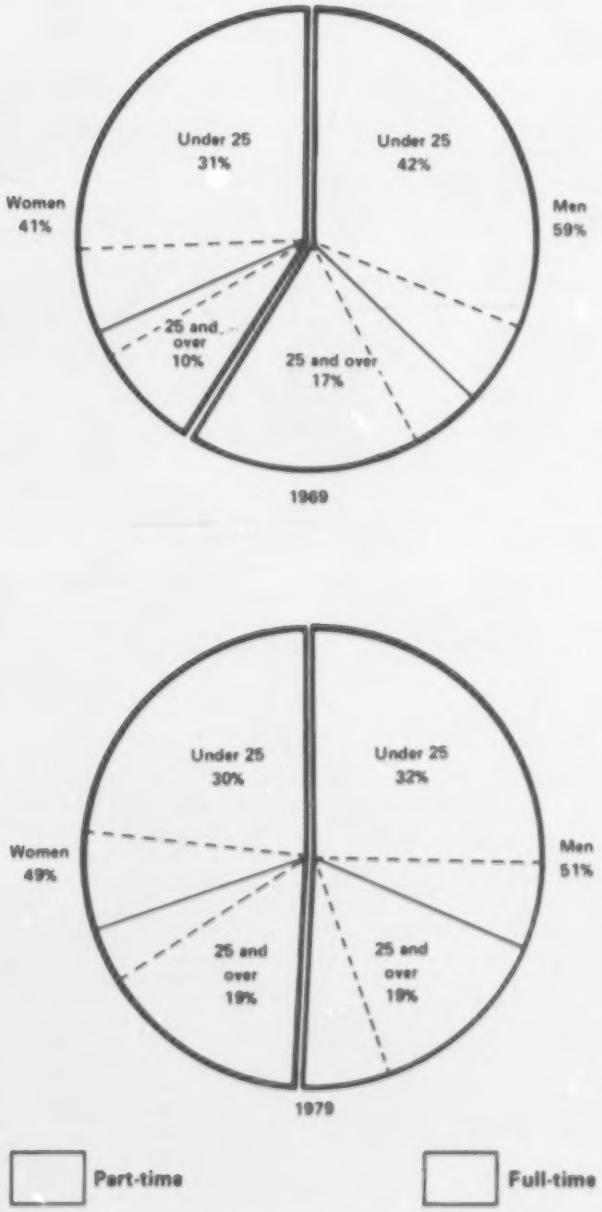
Source: U.S. Department of Education, National Center for Education Statistics, *The Condition of Education.*

Figure 3. --Number of local public school systems: United States, 1945-46 to 1979-80



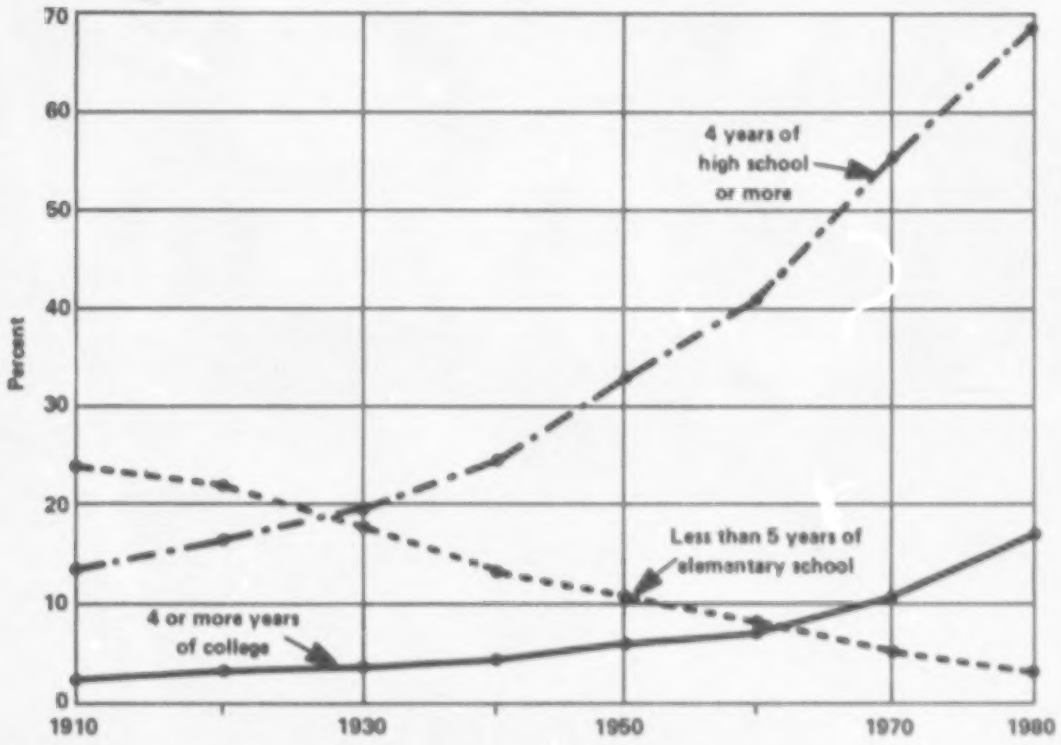
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics 1981*.

Figure 4.--Enrollment in institutions of higher education, by sex, age, and attendance status: United States, fall 1969 and fall 1979



SOURCES: (1) U.S. Department of Education, National Center for Education Statistics, *Opening (Fall) Enrollment in Higher Education*. (2) U.S. Department of Commerce, Bureau of the Census, *Current Population Reports, School Enrollment – Social and Economic Characteristics of Students*, Series P-20.

Figure 5.--Level of school completed by persons 25 years old and over: United States, 1910 to 1980



NOTE.--Data prior to 1940 are estimates based on retrojection of 1940 census data on education by age. Prior to 1950, data exclude Alaska and Hawaii.

SOURCES: U.S. Department of Commerce, Bureau of the Census, *1960 Census of Population*, Vol. 1, Part 1; *Current Population Reports*, Series P-20, Series P-19, No. 4; and 1960 Census Monograph, *Education of the American Population*, by John K. Folger and Charles B. Nam.

Table 1.--Revenue receipts of public elementary and secondary schools from Federal, State, and local sources: United States, 1919-20 to 1978-79

School year	Total	Federal	State	Local (including intermediate)[1]	School year	Total	Federal	State	Local (including intermediate)[1]
1	2	3	4	5	1	2	3	4	5
	AMOUNT IN THOUSANDS OF DOLLARS					PERCENTAGE DISTRIBUTION			
1919-20	$ 970,120	$ 2,475	$ 160,085	$ 807,561	1919-20	100.0	0.3	16.5	83.2
1929-30	2,088,557	7,334	353,670	1,727,553	1929-30	100.0	.4	16.8	82.7
1939-40	2,260,527	39,810	684,354	1,536,363	1939-40	100.0	1.8	30.3	68.0
1941-42	2,416,580	34,305	759,993	1,622,281	1941-42	100.0	1.4	31.4	67.1
1943-44	2,604,322	35,886	859,183	1,709,253	1943-44	100.0	1.4	33.0	65.6
1945-46	3,059,845	41,378	1,062,057	1,956,409	1945-46	100.0	1.4	34.7	63.9
1947-48	4,311,534	120,270	1,676,362	2,514,902	1947-48	100.0	2.8	38.9	58.3
1949-50	5,437,044	155,848	2,165,689	3,115,507	1949-50	100.0	2.9	39.8	57.3
1951-52	6,423,816	227,711	2,478,596	3,717,507	1951-52	100.0	3.5	38.6	57.8
1953-54	7,866,852	355,237	2,944,103	4,567,512	1953-54	100.0	4.5	37.4	58.1
1955-56	9,686,677	441,442	3,828,886	5,416,350	1955-56	100.0	4.6	39.5	55.9
1957-58	12,181,513	486,484	4,800,368	6,894,661	1957-58	100.0	4.0	39.4	56.6
1959-60	14,746,618	651,639	5,768,047	8,326,932	1959-60	100.0	4.4	39.1	56.5
1961-62	17,527,707	760,975	6,789,190	9,977,542	1961-62	100.0	4.3	38.7	56.9
1963-64	20,544,182	896,956	8,078,014	11,569,213	1963-64	100.0	4.4	39.3	56.3
1965-66	25,356,858	1,996,954	9,920,219	13,439,686	1965-66	100.0	7.9	39.1	53.0
1967-68	31,903,064	2,806,469	12,275,536	16,821,063	1967-68	100.0	8.8	38.5	52.7
1969-70	40,266,923	3,219,557	16,062,776	20,984,589	1969-70	100.0	8.0	39.9	52.1
1971-72	50,003,645	4,467,969	19,133,256	26,402,420	1971-72	100.0	8.9	38.3	52.8
1973-74	58,230,892	4,930,351	24,113,409	29,187,132	1973-74	100.0	8.5	41.4	50.1
1975-76	71,206,073	6,318,345	31,776,101	33,111,627	1975-76	100.0	8.9	44.6	46.5
1977-78	[2]81,443,160	[2]7,694,194	[2]35,013,266	38,735,700	1977-78	100.0	[2]9.4	43.0	47.6
1978-79	88,056,997	8,594,493	40,245,891	39,216,613	1978-79	100.0	9.8	45.7	44.5

[1]Includes a relatively small amount from nongovernmental sources (gifts and tuition and transportation fees from patrons). These sources accounted for 0.6 percent of total revenue receipts in 1967-68.
[2]Data revised since originally published.

NOTE.--Beginning in 1959-60, includes Alaska and Hawaii. Because of rounding, details may not add to totals.

SOURCES: U.S. Department of Education, National Center for Education Statistics, *Statistics of State School Systems*, and *Revenues and Expenditures for Public Elementary and Secondary Education, 1977-78* and *1978-79*.

Table 2.—Total and per-pupil expenditures of public elementary and secondary schools: United States, 1919-20 to 1978-79

School year	Expenditures for public schools (in thousands of dollars)					Expenditure per pupil in average daily attendance	
	Total	Current expenditures for day schools	Current expenditures for other programs[1]	Capital outlay	Interest	Total[2]	Current[3]
1	2	3	4	5	6	7	8
1919-20	$ 1,036,151	$ 661,120	$ 3,277	$ 153,543	$ 18,212	$ 64	$ 54
1929-30	2,316,790	1,843,552	9,825	370,878	92,536	108	87
1939-40	2,344,049	1,941,789	13,367	257,974	130,909	105	88
1949-50	5,837,643	4,687,274	35,614	1,014,176	100,578	259	209
1959-60	16,813,256	12,329,389	132,566	2,661,786	489,514	472	375
1961-62	18,375,539	14,729,270	194,093	2,862,153	587,823	530	419
1963-64	21,324,983	17,218,446	427,528	2,977,976	701,044	589	460
1965-66	26,348,035	21,053,280	648,304	3,754,862	791,580	654	537
1967-68	32,877,162	26,877,162	866,419	4,255,791	977,810	786	668
1969-70	40,883,430	34,217,773	635,803	4,659,072	1,170,782	965	816
1971-72	48,050,283	41,817,782	[4]395,319	4,458,943	1,378,236	1,128	990
1973-74	66,870,386	50,024,638	[4]453,207	4,978,976	1,513,534	1,384	1,207
1975-76	70,880,573	62,064,105	[4]553,649	6,146,435	1,846,384	2,096	1,858
1977-78	80,644,396	73,058,023	988,782	5,245,161	1,952,400	2,190	1,994
1978-79	90,711,816	78,951,240	357,454	5,448,035	1,954,886	2,210	2,021

[1] Includes expenditures for adult education, summer schools, community colleges, and community services (when separately reported).
[2] Includes current expenditures for day schools, capital outlay, and interest on school debt.
[3] Includes day school expenditures only; excludes current expenditures for other programs.
[4] Excludes data for adult education and community colleges.

NOTE.—Beginning in 1959-60, includes Alaska and Hawaii. Because of rounding, details may not add to totals.

SOURCES: U.S. Department of Education, National Center for Education Statistics, *Statistics of State School Systems*; and *Digest of Education Statistics, 1981*.

Table 3.--Current-fund revenue of institutions of higher education, by control of institution and by source of revenue: United States, 1978-79

[Amounts in thousands of dollars]

Source	Current-fund revenue, by control of institution					
	Public and private		Public		Private	
	Amount	Percent	Amount	Percent	Amount	Percent
1	2	3	4	5	6	7
Total current-fund revenue	**$51,837,789**	**100.0**	**$34,527,476**	**100.0**	**$17,310,313**	**100.0**
Tuition and fees from students	10,704,171	20.6	4,380,567	12.7	6,323,604	36.5
Federal Government	7,851,326	15.1	4,539,102	13.1	3,312,224	19.1
State governments	16,363,784	31.6	16,018,102	46.4	345,682	2.0
Local governments	1,573,018	3.0	1,461,412	4.2	111,607	.6
Private gifts, grants, and contracts	2,489,366	4.8	835,892	2.4	1,653,475	9.6
Endowment income	985,242	1.9	153,824	.4	831,418	4.8
Sales and services	10,541,892	20.3	6,455,441	18.7	4,086,451	23.6
Other sources	1,328,991	2.6	683,338	2.0	646,653	3.7

[1] Generally includes only those revenues associated with major federally funded research and development centers.

*Less than 0.05 percent.

NOTE.--Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Financial Statistics of Institutions of Higher Education, Fiscal Year 1979*.

Table 4.—Governmental expenditures for education and for all purposes: United States, 1972-73 to 1978-79

Fiscal year	Total expenditures (in millions)	Expenditures for education	
		Amount (in millions)	Percent of total
1	2	3	4
1973-74	$ 480,073	$ 81,883	17.0
1974-75	556,339	95,011	17.1
1975-76	[1]630,144	[1]110,383	17.0
1976-77	680,329	110,843	16.3
1977-78	745,438	118,750	15.9
1978-79	832,385	129,427	15.5

[1] Includes Federal expenditures for the transition quarter July 1-September 30, 1976 when the Federal fiscal year was adjusted under P.L. 93-344.

NOTE: Includes expenditures of Federal, State, and local governments.

SOURCE: U.S. Department of Commerce, Bureau of the Census, reports on *Governmental Finances*.

Table 5.—Gross national product related to total expenditures[1] for education: United States, 1929-30 to 1978-79

Calendar year	Gross national product (in millions)	School year	Expenditures for education		Calendar year	Gross national product (in millions)	School year	Expenditures for education	
			Total (in thousands)	As a percent of gross national product				Total (in thousands)	As a percent of gross national product
1	2	3	4	5	1	2	3	4	5
1929	$103,400	1929-30	$ 3,233,891	3.1	1953	$ 366,129	1953-54	$ 13,048,876	3.6
1931	76,100	1931-32	2,986,464	3.9	1955	399,266	1955-56	16,811,651	4.2
1933	55,800	1933-34	2,294,895	4.1	1957	442,755	1957-58	21,119,565	4.8
1935	72,500	1935-36	2,649,914	3.7	1959	486,465	1959-60	24,722,484	5.1
1937	90,700	1937-38	3,014,074	3.3	1961	523,292	1961-62	29,388,305	5.6
1939	90,600	1939-40	3,199,593	3.5	1963	594,738	1963-64	36,010,210	6.1
1941	124,900	1941-42	3,203,946	2.6	1965	688,110	1965-66	45,397,713	6.6
1943	192,000	1943-44	3,532,007	1.8	1967	796,312	1967-68	57,213,374	7.2
1945	212,300	1945-46	4,107,597	2.0	1969	935,541	1969-70	70,400,980	7.5
1947	232,757	1947-48	6,574,379	2.8	1971	1,063,436	1971-72	82,999,060	7.8
1949	258,023	1949-50	8,795,635	3.4	1973	1,306,554	1973-74	98,512,847	7.5
1951	330,183	1951-52	11,312,446	3.4	1975	1,528,033	1975-76	[2]121,603,841	8.0
					1977	1,899,500	1977-78	140,367,563	7.4
					1978	2,156,000	1978-79	153,177,362	7.1

[1] Includes expenditures of public and private schools at all levels of education (elementary, secondary, and higher).

[2] Revised since originally published.

NOTE.—Beginning with 1959-60 school year, includes Alaska and Hawaii.

SOURCES: (1) U.S. Department of Education, National Center for Education Statistics, *Statistics of State School Systems, Revenues and Expenditures for Public Elementary and Secondary Education, 1977-78; Financial Statistics of Institutions of Higher Education*, and unpublished data. (2) U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, January 1976, July 1979, and January 1980.

Table 6.—Selected statistics for public elementary and secondary schools: United States, fall 1974 and fall 1979

Item	Fall 1974	Fall 1979	Percentage change, 1974 to 1979
1	2	3	4
Local school districts			
Total	16,948	15,929	-6.0
Operating	16,239	15,625	-3.8
Nonoperating	329	304	-7.6
Schools[1]			
Total	88,886	87,004	-1.9
Elementary only	61,769	[2]	—
Secondary only	23,831	[2]	—
Combined elementary and secondary	1,980	[2]	—
Special education schools for the handicapped	1,239	[2]	—
Enrollment			
Total	46,053,272	41,579,665	-7.7
Kindergarten through grade 8	30,920,873	27,884,432	-9.8
Grades 9-12 and postgraduate	14,132,399	13,694,233	-3.1
Percent of total enrollment in elementary schools	68.6	67.1	—
Percent of total enrollment in secondary schools	31.4	32.9	—
Classroom teachers			
Total teachers, full-time and part-time (full-time equivalent)	2,169,536	2,180,506	0.7
Pupil-teacher ratio			
All schools	20.8	19.1	—
Public high school graduates[3]			
Total graduates of regular day school programs	2,763,314	2,817,246	2.0
Boys	1,362,685	1,378,048	1.2
Girls	1,400,749	1,439,198	2.7
Other programs	40,204	37,397	-7.0
High school equivalency certificates	168,610	376,132	16.2

[1] Whether grades 7 and 8 are counted as "elementary" or "secondary" depends on the structure of the local school system.
[2] Data not available.
[3] Data for previous school year.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Statistics of Public Elementary and Secondary Day Schools, Fall 1978 and Fall 1979* (in process), and unpublished data.

Table 7.--Enrollment in educational institutions, by level of instruction and type of control: United States, fall 1978 and fall 1979[1]

[In thousands]

Level of instruction and type of control	Fall 1978	Fall 1979
1	2	3
Total elementary, secondary, and higher education	[illegible]	[illegible]
Public	[illegible]	[illegible]
Private	[illegible]	[illegible]
Kindergarten-grade 12 (regular and other schools)[2]	[illegible]	[illegible]
Regular public schools	[illegible]	[illegible]
Regular private schools	[illegible]	[illegible]
Other public schools	[illegible]	[illegible]
Other private schools	[illegible]	[illegible]
Kindergarten-grade 8 (regular and other schools)[2]	[illegible]	[illegible]
Regular public schools	[illegible]	[illegible]
Regular private schools	[illegible]	[illegible]
Other public schools	[illegible]	[illegible]
Other private schools	[illegible]	[illegible]
Grades 9-12 (regular and other schools)[2]	[illegible]	[illegible]
Regular public schools	[illegible]	[illegible]
Regular private schools	[illegible]	[illegible]
Other public schools	[illegible]	[illegible]
Other private schools	[illegible]	[illegible]
Higher education (total enrollment in colleges, universities, professional schools, teachers colleges, and junior colleges)	[illegible]	[illegible]
Public	[illegible]	[illegible]
Private	[illegible]	[illegible]

[1] The figures for private schools are estimates derived from changes in the school-age population combined with long-range trends in school enrollment rates.

[2] "Regular" schools include schools which are a part of State and local school systems and also most non-profitmaking private elementary and secondary schools, both church affiliated and nonsectarian. "Other" schools include subcollegiate departments of institutions of higher education, residential schools for exceptional children, Federal schools for Indians, and Federal schools on military posts and other Federal installations.

NOTE.--Fall enrollment is usually smaller than school-year enrollment, since the latter is a cumulative figure that includes students who enroll at any time during the year.

SOURCES: U.S. Department of Education, National Center for Education Statistics, *Statistics of Public Elementary and Secondary Day Schools, Fall 1979; Fall Enrollment in Higher Education, 1979*; and estimates of the National Center for Education Statistics.

Table 8.--Enrollment of 3-, 4-, and 5-year-old children in preprimary programs, by age and by type of program: United States, October 1978 and October 1979

[Numbers in thousands]

Enrollment status and type of program	October 1978				October 1979			
	Total 3-5 years old	3 years old	4 years old	5 years old	Total 3-5 years old	3 years old	4 years old	5 years old
1	2	3	4	5	6	7	8	9
Enrollment status								
Total population	9,110	3,023	3,028	3,060	9,119	3,025	3,070	3,024
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Enrolled	50.3	25.1	43.4	82.1	51.1	24.6	45.4	83.5
Not enrolled in these programs	49.7	74.9	56.6	17.9	48.9	75.4	54.6	16.5
Type of program								
Total enrolled	4,584	759	1,313	2,512	4,664	746	1,393	2,525
Nursery school	1,822	737	930	105	1,862	725	1,023	114
Public	585	225	307	52	633	216	359	58
Private	1,237	511	673	53	1,228	509	664	56
Kindergarten	2,762	23	333	2,406	2,802	20	370	2,411
Public	2,296	8	226	2,062	2,381	16	247	2,119
Private	466	15	107	344	421	5	123	293

NOTE.--Data exclude 5-year-olds enrolled at the primary level and 6-year-olds in preprimary programs. Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Commerce, Bureau of the Census, unpublished data from the Current Population Surveys.

Table 9.--Enrollment in grades 9-12 in public and private schools compared with population 14-17 years of age: United States, 1889-90 to fall 1979

School year	Enrollment, grades 9-12[1]			Population 14-17 years of age[2]	Total number enrolled per 100 persons 14-17 years of age
	All schools	Public schools	Private Schools		
1	2	3	4	5	6
1889-90	359,949	[3] 202,963	[3] 94,931	5,354,653	6.7
1899-1900	699,403	[3] 519,251	[3] 110,797	6,152,231	11.4
1909-10	1,115,398	[3] 915,061	[3] 117,400	7,220,298	15.4
1919-20	2,500,176	[3] 2,200,389	[3] 213,920	7,735,841	32.3
1929-30	4,804,255	[3] 4,399,422	[3,4] 341,158	9,341,221	51.4
1939-40	7,123,009	6,635,337	487,672	9,720,419	73.3
1941-42	6,933,265	6,420,544	512,721	9,749,000	71.1
1943-44	6,030,617	5,584,656	445,961	9,449,000	63.8
1945-46	6,237,133	5,664,528	572,605	9,056,000	68.9
1947-48	6,305,168	5,675,937	629,231	8,841,000	71.3
1949-50	6,453,009	5,757,810	695,199	8,404,768	76.8
1951-52	6,596,351	5,917,384	678,967	8,516,000	77.5
1953-54	7,108,973	6,330,565	778,408	8,861,000	80.2
1955-56	7,774,975	6,917,790	857,185	9,207,000	84.4
1957-58	8,869,186	7,905,469	963,717	10,139,000	87.5
1959-60	9,599,810	8,531,454	1,068,356	11,154,879	86.1
1961-62	10,768,972	9,616,755	1,152,217	12,046,000	89.4
Fall 1963	12,255,496	10,935,536	1,319,960	13,492,000	90.8
Fall 1965	13,020,823	11,657,808	1,363,015	14,145,000	92.1
Fall 1969	14,418,301	13,084,301	[5] 1,334,000	15,550,000	92.7
Fall 1971	15,226,000	13,886,000	[5] 1,340,000	16,279,000	93.5
Fall 1973	15,376,526	14,141,526	[5] 1,335,000	16,745,000	92.4
Fall 1975	15,304,098	14,369,098	[5] 1,435,000	16,932,000	90.3
Fall 1977	15,820,000	14,305,000	[6] 1,515,000	16,782,000	94.3
Fall 1979[7]	15,301,000	13,756,000	[5] 1,545,000	16,275,000	94.0

[1] Unless otherwise indicated, includes enrollment in subcollegiate departments of institutions of higher education and in residential schools for exceptional children. Beginning in 1949-50, also includes Federal schools.

[2] Includes all persons residing in the United States, but excludes Armed Forces overseas. Data from the decennial censuses have been used when appropriate. Other figures are Bureau of the Census estimates as of July 1 preceding the opening of the school year.

[3] Excludes enrollment in subcollegiate departments of institutions of higher education and in residential schools for exceptional children.

[4] Data for 1927-28.

[5] Estimated.

[6] Revised estimate.

[7] Preliminary data.

NOTE.--Beginning in 1959-60, includes Alaska and Hawaii.

SOURCES: U.S. Department of Education, National Center for Education Statistics, *Statistics of State School Systems; Statistics of Public Elementary and Secondary Day Schools; Statistics of Nonpublic Elementary and Secondary Schools*, and unpublished data.

Table 10. – Enrollment in vocational education programs,[1] by type of program and by level: United States and outlying areas, 1978-79

Type of Program	Total	Below grade 11	Grade 11-12	Postsecondary	Adult (long-term)	Adult (short-term)
Total	17,268,042	4,977,571	5,483,235	2,027,510	972,790	3,806,936
Agriculture	971,726	364,758	331,680	50,748	22,063	202,477
Distribution	942,057	66,210	303,663	231,963	57,065	283,156
Health	798,520	30,365	90,971	224,593	98,589	354,002
Consumer and homemaking	3,710,246	1,380,630	1,430,556	30,252	47,790	821,018
Occupational home economics	589,878	177,235	182,045	66,789	27,477	136,332
Industrial arts	1,683,902	1,114,672	551,280	1,309	25	16,616
Office occupations	3,469,134	728,713	1,328,475	658,605	204,586	548,755
Technical	484,076	8,987	18,784	310,727	41,497	104,081
Trade and industrial	3,436,089	460,108	989,325	404,867	430,848	1,150,941
Other programs	1,182,414	645,893	256,456	47,657	42,850	189,558

[1] Includes programs receiving support from the Vocational Education Act.

SOURCE: U.S. Department of Education, National Center for Education Statistics, A Statistical Overview of Vocational Education, September 17, 1980.

Table 11.—Number of institutions of higher education, by control and type of institution: United States, 1965-66 to 1979-80

Year	All institutions			Publicly controlled			Privately controlled		
	Total	4-year	2-year	Total	4-year	2-year	Total	4-year	2-year
Excluding branch campuses:									
1965-66	2,230	1,551	679	821	401	420	1,409	1,150	259
1966-67	2,329	1,577	752	880	403	477	1,449	1,174	275
1967-68	2,374	1,588	786	934	414	520	1,440	1,174	266
1968-69	2,483	1,619	864	1,011	417	594	1,472	1,202	270
1969-70	2,525	1,639	886	1,060	426	634	1,465	1,213	252
1970-71	2,556	1,665	891	1,089	435	654	1,467	1,230	237
1971-72	2,606	1,675	931	1,137	440	697	1,469	1,235	234
1972-73	2,665	1,701	964	1,182	449	733	1,483	1,252	231
1973-74	2,720	1,717	1,003	1,200	440	760	1,520	1,277	243
1974-75	2,747	1,744	1,003	1,214	447	767	1,533	1,297	236
1975-76	2,765	1,767	998	1,219	447	772	1,546	1,320	226
1976-77	2,785	1,783	1,002	1,231	452	779	1,554	1,331	223
1977-78	2,826	1,808	1,018	1,241	454	787	1,585	1,354	231
Including branch campuses:									
1974-75	3,004	1,866	1,138	1,433	537	896	1,571	1,329	242
1975-76	3,026	1,898	1,128	1,442	545	897	1,584	1,353	231
1976-77	3,046	1,913	1,133	1,455	550	905	1,591	1,363	228
1977-78	3,095	1,938	1,157	1,473	552	921	1,622	1,386	236
1978-79	3,134	1,941	1,193	1,474	550	924	1,660	1,391	269
1979-80	3,152	1,957	1,195	1,475	549	926	1,677	1,408	269

SOURCES: U.S. Department of Education, National Center for Education Statistics, unpublished data and special tabulations from *Fall Enrollment in Higher Education* and *Education Directory: Colleges and Universities*.

Table 12.--Total enrollment in institutions of higher education compared with population aged 18-24: United States, fall 1963 to fall 19 9

Year	Population 18-24 years of age[1]	Enrollment	Number enrolled per 100 persons 18-24 years of age
1	2	3	4
1963	18,268,000	4,765,867	26.1
1964	18,783,000	5,280,020	28.1
1965	20,293,000	5,920,864	29.2
1966	21,376,000	6,389,872	29.9
1967	22,327,000	6,911,748	31.0
1968	22,883,000	7,513,091	32.8
1969	23,723,000	8,004,660	33.7
1970	24,687,000	8,580,887	34.8
1971	25,779,000	8,948,644	34.7
1972	25,913,000	9,214,860	35.6
1973	26,397,000	9,602,123	36.4
1974	26,916,000	10,223,729	38.0
1975	27,605,000	11,184,859	40.5
1976	28,163,000	11,012,137	39.1
1977	28,605,000	11,285,787	39.5
1978	28,971,000	11,260,092	38.9
1979	29,285,000	11,569,899	39.5

[1] Bureau of the Census estimates as of July 1 preceding the opening of the academic year. Includes Armed Forces overseas.

NOTE.--While 18 to 24 is frequently considered to be the usual age for college attendance, an increasing number of students in recent years have been outside this age group. According to a sample survey conducted by the Bureau of the Census in October 1979, 2.7 percent of the students were under 18; 45.7 percent, 18 to 21; 15.8 percent, 22 to 24; and 35.8 percent, 25 or over.

SOURCES: (1) U.S. Department of Education, National Center for Education Statistics, *Fall Enrollment in Higher Education*. (2) U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-25, Nos. 519, 704, 721, and 870.

Table 13.--Enrollment in institutions of higher education, by age, sex and attendance status of student: United States, fall 1969, 1974, and 1979

(In thousands)

Age	1969 (Estimated)			1974 (Estimated)			1979 (Estimated)		
	Total	Full-time	Part-time	Total	Full-time	Part-time	Total	Full-time	Part-time
Total	8004.4	5499.2	2505.2	10218.1	6364.2	3853.9	11508.4	6815.7	4692.7
16 and 17 years	226.4	214.4	12.0	301.9	265.4	36.5	255.2	229.2	26.0
18 and 19 years	2444.7	2305.6	139.1	2580.2	2308.1	252.1	2754.8	2434.5	320.3
20 and 21 years	1857.4	1632.6	224.8	2191.1	1828.3	362.8	2260.6	1876.0	384.6
22 to 24 years	1319.2	818.1	501.1	1571.4	961.2	610.2	1857.3	1144.8	712.5
25 to 29 years	1013.8	326.0	687.8	1621.0	604.8	1016.2	1816.4	654.4	1162.0
30 to 34 years	493.2	98.5	391.7	808.3	193.6	614.7	1080.8	274.7	806.1
35 years and over	649.7	104.0	545.7	1184.2	202.8	981.4	1483.3	202.1	1281.2
Men	4746.1	3336.0	1410.1	5619.1	3643.2	1975.9	5846.1	3662.5	2183.6
16 and 17 years	112.0	108.3	3.7	141.9	130.1	11.8	104.6	92.3	12.3
18 and 19 years	1317.4	1261.0	56.4	1260.0	1156.6	103.4	1336.2	1189.2	147.0
20 and 21 years	1063.6	955.8	107.8	1218.5	1024.5	194.0	1191.9	1008.0	183.9
22 to 24 years	891.5	620.7	270.8	954.1	665.0	289.1	1067.0	717.7	349.3
25 to 29 years	738.6	267.0	471.6	1035.7	431.5	604.2	1054.7	422.1	632.8
30 to 34 years	301.7	95.3	206.4	470.1	122.2	347.9	559.3	147.0	412.3
35 years and over	321.3	57.9	263.4	538.8	113.3	425.5	532.4	86.2	446.2
Women	3258.3	2163.2	1095.1	4599.0	2721.0	1878.0	5662.3	3153.2	2509.1
16 and 17 years	114.4	106.1	8.3	160.0	135.3	24.7	150.6	136.9	13.7
18 and 19 years	1127.3	1044.6	82.7	1300.2	1151.5	148.7	1418.6	1245.3	173.3
20 and 21 years	793.8	676.8	117.0	972.6	803.8	168.8	1068.7	868.0	200.7
22 to 24 years	427.7	197.4	230.3	617.3	296.2	321.1	790.3	427.1	363.2
25 to 29 years	275.2	59.0	216.2	585.3	173.3	412.0	761.7	232.3	529.4
30 to 34 years	191.5	33.2	158.3	338.2	71.4	266.8	521.5	127.7	393.8
35 years and over	328.4	46.1	282.3	625.9	89.5	535.9	950.9	115.9	835.0

NOTE:--Data are for 50 States and the District of Columbia for all years. Because of rounding, details may not add to totals.

SOURCES:--(1) U.S. Department of Education, National Center for Education Statistics, *Opening (Fall) Enrollment in Higher Education*. (2) U.S. Department of Commerce, Bureau of the Census, *Current Population Reports, School Enrollment -- Social and Economic Characteristics of Students*, Series P-20.

Table 14.--Number of teachers in regular elementary and secondary schools, and instructional staff members in institutions of higher education, by level and control: United States, 1929-30 to fall 1979 [1]

Level and control	1929-30	1939-40	1949-50	1959-60	1969-70	Fall 1978[2]	Fall 1979[2]
1	2	3	4	5	6	7	8
Elementary[3]	702,524	640,047	665,665	953,431	1,271,467	1,352,000	1,351,000
Public	640,95	575,200	589,578	833,772	1,126,467	1,178,000	1,171,000
Private	[4]61,56	64,847	[2]76,087	[2]119,659	[2]145,000	174,000	180,000
Secondary[3]	235,094	330,407	366,277	577,160	970,786	1,108,000	1,100,000
Public	213,306	300,277	324,093	521,186	896,786	1,021,000	1,010,000
Private	[4]21,788	30,130	[2]42,184	[2]55,974	[2]74,000	87,000	90,000
Higher education[5]	84,872	116,817	190,353	281,506	[2]546,000	809,000	872,000
Public	38,305	50,013	87,707	144,541	[2]352,000	592,000	652,000
Private	46,567	66,804	102,646	136,965	[2]194,000	217,000	220,000

[1] Data for private elementary and secondary schools are not as complete as those for public schools; consequently, the estimates for private schools are not as reliable as those for public schools. The estimates are derived from enrollment changes combined with the long-term trend in pupil-teacher ratios.

[2] Estimated.

[3] Excludes subcollegiate departments of institutions of higher education, residential schools for exceptional children, and Federal schools.

[4] Data for 1927-28.

[5] Includes full-time and part-time staff with rank of instructor or above, and junior staff such as graduate assistants, who provide instruction in colleges, universities, and professional schools.

NOTE.--Beginning in 1959-60, includes Alaska and Hawaii.

SOURCES: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1981; Projections of Education Statistics to 1988-89;* and surveys and estimates of the National Center for Education Statistics.

Table 15.--Pupil-teacher ratios in public elementary and secondary day schools: United States, fall 1954 to fall 1979

Fall	Pupil-teacher ratio	Fall	Pupil-teacher ratio
1	2	1	2
1954	27.8	1967	23.7
1955	26.9	1968	23.2
1956	26.5	1969	22.7
1957	26.2	1970	22.3
1958	25.1	1971	22.3
1959	26.0	1972	21.8
1960	25.8	1973	21.3
1961	25.6	1974	20.8
1962	25.7	1975	20.4
1963	25.5	1976	20.3
1964	25.1	1977	19.7
1965	24.7	1978	19.4
1966	24.1	1979	19.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Statistics of Public Elementary and Secondary Day Schools, Fall 1978* and estimates of the National Center for Education Statistics.

Table 16.--Number of high school graduates, by sex: United States, 1869-70 to 1978-79

School year	High school graduates[1]		
	[illegible]	Boys	Girls
1	2	3	4
1869-70	[illegible]	7,064	8,936
1879-80	[illegible]	10,605	13,029
1889-90	[illegible]	18,549	25,182
1899-1900	[illegible]	38,075	56,808
1909-10	[illegible]	63,676	92,753
1919-20	[illegible]	123,684	187,582
1929-30	[illegible]	300,376	366,528
1939-40	[illegible]	578,718	642,757
1941-42	[illegible]	576,717	665,658
1943-44	[illegible]	423,971	595,262
1945-46	[illegible]	466,926	613,107
1947-48	[illegible]	562,863	627,046
1949-50	[illegible]	570,700	629,000
1951-52	[illegible]	569,200	627,300
1953-54	[illegible]	612,500	663,600
1955-56	[illegible]	679,500	735,300
1957-58	[illegible]	725,500	780,400
1959-60	[illegible]	898,000	966,000
1961-62	[illegible]	941,000	984,000
1963-64	[illegible]	1,121,000	1,169,000
1965-66	[illegible]	1,308,000	1,324,000
1967-68	[illegible]	1,341,000	1,361,000
1969-70	[illegible]	1,433,000	1,463,000
1971-72	[illegible]	1,490,000	1,518,000
1973-74	[illegible]	1,515,000	1,565,000
1975-76	[illegible]	1,554,000	1,601,000
1977-78	[illegible]	1,535,000	1,599,000
1978-79[2]	[illegible]	1,531,800	1,602,400

[1] Includes public and estimated private school graduates.
[2] Includes preliminary public school data.

NOTE.--Beginning in 1959-60, includes Alaska and Hawaii.

SOURCES: U.S. Department of Education, National Center for Education Statistics, *Statistics of State School Systems; Statistics of Nonpublic Elementary and Secondary Schools; Statistics of Public Elementary and Secondary Day Schools; Projections of Education Statistics to 1988-89;* and unpublished data.

Table 17.--Earned degrees conferred by institutions of higher education, by level of degree; United States, 1869-70 to 1978-79

Year	Earned degrees conferred				
	All degrees	Bachelor's[1]	First-professional[1]	Master's[2]	Doctor's
1	2	3	4	5	6
1869-70	9,372	9,371	---	0	1
1879-80	13,829	12,896	---	879	54
1889-90	16,703	15,539	---	1,015	149
1899-1900	29,375	27,410	---	1,583	382
1909-10	39,758	37,199	---	2,113	443
1919-20	53,516	48,622	---	4,279	615
1929-30	139,752	122,484	---	14,969	2,299
1939-40	216,521	186,500	---	26,731	3,290
1941-42	213,491	185,346	---	24,648	3,497
1943-44	141,582	125,863	---	13,414	2,305
1945-46	157,349	136,174	---	19,209	1,966
1947-48	317,807	271,019	---	42,400	4,188
1949-50	496,661	432,058	---	58,183	6,420
1951-52	401,203	329,986	---	63,534	7,683
1953-54	366,608	290,825	---	56,788	8,995
1955-56	376,973	308,812	---	59,258	8,903
1957-58	436,979	382,554	---	65,487	8,938
1959-60	476,704	392,440	---	74,435	9,829
1961-62	514,323	417,848	---	84,855	11,622
1963-64	614,194	498,654	---	101,050	14,490
1965-66	709,832	519,804	31,238	140,555	18,237
1967-68	866,648	632,289	34,421	176,749	23,089
1969-70	1,068,391	792,316	34,918	208,291	29,866
1970-71	1,140,292	839,730	37,946	230,509	32,107
1971-72	1,215,680	887,273	43,411	251,633	33,363
1972-73	1,270,538	922,262	50,018	263,371	34,777
1973-74	1,310,441	945,776	53,816	277,033	33,816
1974-75	1,306,382	922,933	55,916	292,450	34,083
1975-76	1,334,230	925,746	62,649	311,771	34,064
1976-77	1,334,304	919,549	64,359	317,164	33,232
1977-78	1,331,536	921,204	66,581	311,620	32,131
1978-79	1,324,047	921,390	68,648	301,079	32,730

[1] From 1869-70 through 1963-64, first-professional degrees are included with bachelor's degrees.
[2] Prior to 1965-65, some master's degrees in fields such as library science and social work were counted as first-professional degrees and are reported in column 3.

NOTE.--Beginning in 1959-60, includes Alaska and Hawaii.

SOURCES: U.S. Department of Education, National Center for Education Statistics, *Biennial Survey of Education in the United States; Earned Degrees Conferred; and* unpublished data.

Table 18.–Earned degrees conferred by institutions of higher education, by field of study and by level: United States, 1978-79

Field of study	Bachelor's degrees (requiring 4 or 5 years)	First professional degrees (requiring at least 6 years)	Master's degrees	Doctor's degrees (Ph.D., Ed.D., etc.)
1	2	3	4	5
All fields	**921,390**	**68,848**	**301,079**	**32,730**
Agriculture and natural resources	23,134	–	3,994	950
Architecture and environmental design	9,273	–	3,113	96
Area studies	2,586	–	773	133
Biological sciences	48,846	–	6,831	3,542
Business and management	172,915	–	50,506	863
Communications	26,457	–	2,882	192
Computer and information sciences	8,219	–	3,065	236
Education	126,006	–	111,536	7,731
Engineering	62,375	–	15,495	2,506
Fine and applied arts	40,969	–	8,524	700
Foreign languages	11,825	–	2,426	641
Health professions	62,085	27,036	15,485	718
Home economics	18,300	–	2,510	219
Law	678	35,206	1,647	46
Letters[1]	42,007	–	8,891	1,924
Library science	558	–	5,906	70
Mathematics	11,806	–	3,036	730
Military sciences	347	–	38	—
Physical sciences	23,207	–	5,451	3,102
Psychology	42,461	–	8,003	2,882
Public affairs and services	38,249	–	19,946	388
Social sciences	108,342	–	12,887	3,380
Theology	6,091	6,607	3,558	1,232
Interdisciplinary and other fields	34 154	—	4,586	709

[1]Includes general English; English literature; comparative literature; classics; linguistics; speech, debate and forensic science; creative writing; teaching of English as a foreign language; philosophy; and religious studies.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Earned Degrees Conferred, 1978-79* (in process).

Table 19.–Estimated retention rates,[1] 5th grade through college entrance, in public and private schools: United States, 1924-25 to fall 1971

School year pupils entered 5th grade	Retention per 1,000 pupils who entered 5th grade									
	5th grade	6th grade	7th grade	8th grade	9th grade	10th grade	11th grade	12th grade	High school graduation	First-time college students
									Number / Year of graduation	
1	2	3	4	5	6	7	8	9	10 / 11	12
1924-25	1,000	911	798	741	612	470	384	[illegible]	[illegible] / 1932	[illegible]
1926-27	1,000	919	824	754	677	552	453	[illegible]	[illegible] / 1934	[illegible]
1928-29	1,000	939	847	805	736	624	498	[illegible]	[illegible] / 1936	[illegible]
1930-31	1,000	943	872	824	770	652	529	[illegible]	[illegible] / 1938	[illegible]
1932-33	1,000	935	889	831	786	664	570	[illegible]	[illegible] / 1940	[illegible]
1934-35	1,000	953	892	842	803	711	610	[illegible]	[illegible] / 1942	[illegible]
1936-37	1,000	954	895	849	839	704	554	[illegible]	[illegible] / 1944	[illegible]
1938-39	1,000	955	908	853	796	655	532	[illegible]	[illegible] / 1946	[illegible]
1940-41	1,000	968	910	836	781	697	566	[illegible]	[illegible] / 1948	[illegible]
1942-43	1,000	954	909	847	807	713	604	[illegible]	[illegible] / 1950	[illegible]
1944-45	1,000	952	929	858	848	748	650	[illegible]	[illegible] / 1952	[illegible]
1946-47	1,000	954	945	919	872	775	641	[illegible]	[illegible] / 1954	[illegible]
1948-49	1,000	984	956	929	863	795	706	[illegible]	[illegible] / 1956	[illegible]
1950-51	1,000	981	968	921	886	809	709	[illegible]	[illegible] / 1958	[illegible]
1952-53	1,000	974	965	936	904	835	746	[illegible]	[illegible] / 1960	[illegible]
1954-55	1,000	980	979	948	915	855	759	[illegible]	[illegible] / 1962	[illegible]
1956-57	1,000	985	984	948	930	871	790	[illegible]	[illegible] / 1964	[illegible]
Fall 1958	1,000	983	979	961	946	908	842	[illegible]	[illegible] / 1966	[illegible]
Fall 1960	1,000	980	973	967	952	913	858	[illegible]	[illegible] / 1968	[illegible]
Fall 1962	1,000	987	977	967	959	928	860	[illegible]	[illegible] / 1970	[illegible]
Fall 1964	1,000	888	985	976	975	942	865	[illegible]	[illegible] / 1972	[illegible]
Fall 1966	1,000	989	986	985	985	959	871	[illegible]	[illegible] / 1974	[illegible]
Fall 1968	1,000	992	992	991	983	958	869	[illegible]	[illegible] / 1976	[illegible]
Fall 1970	1,000	990	990	988	982	965	881	[illegible]	[illegible] / 1978	[illegible]
Fall 1971	1,000	991	989	989	985	976	874	[illegible]	[illegible] / 1979	[illegible]

[1] Rates for the 5th grade through high school graduation are based on enrollments in successive grades in successive years in public elementary and secondary schools and are adjusted to include estimates for nonpublic schools. Rates for first-time college enrollment include full-time and part-time students enrolled in programs creditable toward a bachelor's degree.

[2] Data not available.

NOTE.–Beginning with the class in the 5th grade in 1958, data are based on fall enrollment and exclude ungraded pupils. The net effect of these changes is to increase high school graduation and college entrance rates slightly.

SOURCES: U.S. Department of Education, National Center for Education Statistics, *Biennial Survey of Education in the United States; Statistics of State School Systems; Fall Statistics of Public Elementary and Secondary Day Schools;* and unpublished data.

Table 20.--Level of school completed by persons age 25 and over and 25 to 29, by race: United States, 1910 to 1980

Race, age, and date	Percent, by level of school completed			Median school years completed
	Less than 5 years of elementary school	4 years of high school or more	4 or more years of college	
1	2	3	4	5
All races				
25 and over:				
1910[1]	23.8	13.5	2.7	8.1
1920[1]	22.0	16.4	3.3	8.2
1930[1]	17.5	19.1	3.9	8.4
April 1940	13.5	24.1	4.6	8.6
April 1950	10.8	33.4	6.0	9.3
April 1960	8.3	41.1	7.7	10.5
March 1970	5.3	55.2	11.0	12.2
March 1975	4.2	62.6	13.9	12.3
March 1980	3.3	68.7	17.0	12.5
25 to 29:				
April 1940	5.9	37.8	5.8	10.4
April 1950	4.6	51.7	7.7	12.1
April 1960	2.8	60.7	11.1	12.3
March 1970	1.1	75.4	16.4	12.6
March 1975	1.0	83.2	22.0	12.8
March 1980	0.7	85.8	22.6	12.9
White				
25 and over:				
April 1940	10.9	26.1	4.9	8.7
April 1950	8.7	35.5	6.4	9.7
April 1960	6.7	43.2	8.1	10.8
March 1970	4.2	57.4	11.6	12.2
March 1975	3.3	64.6	14.5	12.4
March 1980	2.6	70.7	17.9	12.5
25 to 29:				
1920[1]	12.9	22.0	4.5	8.5
April 1940	3.4	41.2	6.4	10.7
April 1950	3.2	55.2	8.1	12.2
April 1960	2.2	63.7	11.8	12.3
March 1970	0.9	77.8	17.3	12.6
March 1975	1.0	84.5	22.9	12.8
March 1980	0.7	87.2	23.9	12.9
Black and other races				
25 and over:				
April 1940	41.8	7.7	1.3	5.7
April 1950	31.4	13.4	2.2	6.9
April 1960	23.5	21.7	3.5	8.2
March 1970	14.7	36.1	6.1	10.1
March 1975	11.8	46.4	9.1	11.4
March 1980	9.1	54.0	10.7	12.1
25 to 29:				
1920[1]	44.6	6.3	1.2	5.4
April 1940	26.7	12.1	1.6	7.1
April 1950	15.4	23.4	2.8	8.7
April 1960	7.2	38.6	5.4	10.8
March 1970	2.2	58.4	10.0	12.2
March 1975	0.7	73.8	15.2	12.6
March 1980	1.1	77.1	14.6	12.7

[1] Estimates based on retrojection of 1940 census data on education by age.

NOTE.--Prior to 1950, data exclude Alaska and Hawaii. Data for 1975 and 1980 are for the noninstitutional population.

SOURCES: U.S. Department of Commerce, Bureau of the Census, *1960 Census of Population*, Vol. 1, Part 1; *Current Population Reports*, Series P-20, Series P-19, No. 4; and 1960 Census Monograph, *Education of the American Population*, by John K. Folger and Charles B. Nam.

Table 21.--States using minimum competency testing, by government level setting standards, grade levels assessed, and expected uses of standards: 1979

States using minimum competency testing	Government level setting standards	Grade levels assessed	Expected [1] uses of standards				
			Grade promotion	High school graduation	Early exit	Remediation	Other
1	2	3	4	5	6	7	8
Alabama	State	3, 6, 9+		X		X	
Arizona	State/local	8, 12		X			X
Arkansas	State	3, 4, 6, 8					X
California	State/local	4-11, 16 yr. old+	X	X	X	X	
Colorado	Local	9, 12		Local option			
Connecticut	State/local	3, 5, 7, 9				X	X
Delaware	State	11		X			
Florida	State/local	3, 5, 8, 11	X	X	X		
Georgia	State	4, 8, 10, 11					X
Idaho	State	9-12		Local option			
Illinois	Local	Local option					Local option
Indiana	Local	3, 6, 8, 10				X	X
Kansas	State	2-4, 6, 8, 9, 11, 12					Local option
Kentucky	State/local	3, 5, 7, 8, 10, 11					X
Louisiana	State	4, 8, 11					X
Maine	State	8, 11					X
Maryland	State	3, 7, 9, 11	X	X		X	
Massachusetts	Local	Local option					X
Michigan	State	4, 7, 10					Local option
Missouri	State	8					X
Nebraska	Local	5+					X
Nevada	State	3, 6, 9, 12		X		X	
New Hampshire	State	4, 8, 12					Local option
New Jersey	State	3, 5, 8-12		X		X	X
New Mexico	State	Local option, 10					X
New York	State	3, 5, 8-12		X		X	
North Carolina	State	1-3, 6, 9, 11		X			
Oklahoma	None	3, 6, 9, 12					X
Oregon	Local	Local option		X			X
Rhode Island	State	4, 8, 10					
South Carolina	State	1-3, 6, 8, 11				X	X
Tennessee	State/local	4-6, 8, 11, 12		X		X	X
Texas	Not reported	3, 5, 9+				X	
Utah	Local	Local option		X			
Vermont	State	K-12		X			X
Virginia	State/local	K-6, 9-12		X			
Washington	Local	4, 8					Local option
Wyoming	Local	Local option		X			

[1] In most States uses of standards will be phased in and are not yet in effect.

SOURCE: Education Commission of the States, Department of Research and Information, *States Activity--Minimum Competency Testing, 1980.*